The Sight-Saving Review

Volume XXIII Number 1

Spring, 1953

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Deficiency Diseases in Relation to the Eye

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Ophthalmological studies show that the eye may be affected when other parts of the body are subject to changes in structure and function as a result of improper nutrition and hygiene.

FROM carefully planned experimental investigation in the laboratory it has been demonstrated that the lack of essential substances such as the proteins, carbohydrates, fats, minerals, and the vitamins in the diet of animals may produce specific deficiency symptoms. Some of these manifestations of nutritional deficiency have their analogue in man; particularly is this true of xerophthalmia, scurvy, rickets and beriberi. The ophthalmologist has recognized that faulty nutrition may interfere with the normal function of the eye. Patients exhibiting eye disease may be suffering from the lack of essential substances in their daily diet.

The clinical diagnosis of early vitamin deficiency is often difficult to make, particularly when physical findings are absent or when the lesion is superimposed on conditions created by chronic degenerative diseases. The symptoms may be modified by the presence of some constitutional disturbance resulting from dysfunction of the endocrines. The subjective manifestations which occur in persons with subclinical avitaminosis are frequently those ascribed to neurasthenia. It is possible that both conditions may be present and require extensive treatment.

Multiple Deficiencies

It is apparent from experimental investigation that there is some interrelation of vitamin activity. In many cases the deficiencies are multiple and treatment of the predominant symptom of the deficiency with a single factor of a complicated vitamin such as vitamin B complex may disclose other deficiencies which have previously been masked. It has been demonstrated that certain conditions known as conditioning factors increase the requirements for essentials above the normal level. Some of the important factors are those of physical exertion, excessive exposure to light, and exposure to some toxic substances. These factors alone or together do not necessarily produce deficiency states but they may easily influence the introduction of a deficiency condition in a susceptible body.

It is now recognized that deficiencies of a single vitamin are rare in man. Many observers believe that when a progressive multiple vitamin deficiency state exists, the signs and symptoms linked with a lack of the B complex are likely to be the first to appear. Thus, loss of appetite, increased fatigability, and emotional and nervous disturbances appear early. The early physical signs are those involving the tongue and, later, the angles of the mouth. These changes are followed by constipation and diarrhea, and later by dermatitis and neuritis. Although anemia resulting from the lack of vitamin A occurs comparatively early, night blindness and other eye disturbances associated with vitamin A deficiency are slower to develop.

Importance of Vitamin A

When animals are deprived of vitamin A in their food, they cannot grow or rebuild worn-out body tissue. It has been demonstrated that vitamin A is essential for the maintenance of the cell structure of various epithelial cells of the eye, skin, respiratory tract, gastrointestinal tract and the genitourinary system. In vitamin A deficiency the normal epithelial cells are subject to pathologic changes. The epithelium atrophies and the cells are replaced by proliferation of the basal cells, which in turn become keratinized. Vitamin A deficiency has been observed in the face of an adequate intake in persons with biliary obstruction or other conditions in which fat digestion is disturbed. In this country it is unusual to see frank cases of keratomalacia or even milder ocular disturbances such as Bitot's plaques or pigment changes in the conjunctiva attributed to vitamin A deficiency. Vitamin A has been found as a component of visual purple in the rods of the retina. Thus, vitamin A may assume an extremely important role in the physiology of vision. There may be some relation between color thresholds, poor dark adaptation and avitaminosis.

Night blindness has been found in a number of ocular diseases which affect principally the retina and the optic nerve. Retinitis pigmentosa is an outstanding example of this condition. Prolonged exposure to strong light, diseases of the liver with jaundice, and some cases of high myopia are frequently characterized by night blindness. Retinitis pigmentosa having night blindness as an outstanding symptom has not as yet been cured with large amounts of vitamin A products and supplements of vitamin B complex. Although many patients have claimed some improvement with this therapy, clinical investigation does not corroborate this claim. Even though the condition is not definitely due to a vitamin deficiency, the patients should receive the benefit of vitamin therapy either for its specific effect or as an adjunct to other treatment. Considerable success has been obtained in correcting the poor dark adaptation of some aviators, sailors, drivers and others by giving them large quantities of vitamin A.

The eye disturbances that have been attributed to the lack of vitamin A in the diet are xerophthalmia, keratomalacia, cysts of the lid, infections of the meibomian glands, calcarious deposits in the palpebral conjunctiva, conjunctivitis with lack of luster and wrinkling of the conjunctiva, pigmentation of the conjunctiva, bleph-

aritis, hordeola, poor lacrimation, edema and puffiness of the lids, and night blindness. Many of the aforementioned ocular disturbances have also been included in the lists that have been cured by supplementing vitamin B complex to the diet.

In the daily practice of ophthalmology one is impressed with the number of blond persons seeking relief from photophobia associated with pain, rapid fatigue of the eyes upon use for distance and near, headaches and temporary blurring of vision. Although the ocular tissue may be treated with various kinds of "eye drops," ointments, washes and corrective lenses yet the distress and discomfort are not entirely relieved. The ocular distress is frequently alleviated when these patients are given large quantities of vitamin A and riboflavin. It may also be necessary to correct their manner of living by pointing out that a normal amount of sleep, a balanced diet and proper elimination are important. Often I recommend a mild sedative and a regime including multivitamin therapy.

B Complex Factors

The members of the B complex group are closely associated in natural food. The factors most frequently used in the treatment of ocular disturbances are thiamine, riboflavin, and niacin. The remaining components of vitamin B complex including biotin, folic acid and B^{12}—may be valuable in restoring refractory ocular disturbances. Further clinical investigation may disclose their real value. Although the dominant symptoms in a case may be those related to one factor of vitamin B complex it is unlikely, that a pure deficiency of a single factor obtains clinically. The most constant and striking manifestation of vitamin B_1 or thiamine deficiency arises from degenerative processes in the nervous system. The typical neurologic symptoms and signs are those of peripheral neuritis; clinical experience indicates that vitamin B_1 may also be concerned in some diseases of the ocular nerves.

Thiamine deficiency may arise from insufficient dietary intake, inefficient absorption from the gastrointestinal tract, or increased requirement. Persons with abnormal food habits or idiosyncrasies, alcoholics, or those on reducing or special diets, or following novel food fads, are especially subject to deficiency of the vitamin. Insufficiency conditions may arise in patients with impaired appetites associated with disease or dietary restriction. Special prescribed diets may be inadequate as in treatment of peptic ulcer, renal disease, and diabetes. In chronic gastrointestinal disturbances the absorption of thiamine may be defective. Acute deficiency may develop in postoperative states and following extensive antibiotic therapy. An increased demand for thiamine appears under conditions of greatly augmented metabolism, as in febrile states, hyperthyroidism, vigorous muscular activity, pregnancy, and lactation.

The manifestations of riboflavin deficiency are described as reddened, thin, shiny denuded lips with maceration and fissuring in the angles of the mouth, a seborrheic accumulation at the nasolabial folds, and a tongue which appears to be clear but the papillae are flattened, or mushroom shaped, rather than atrophic. The color of the tongue is definitely purplish red as compared with scarlet tongue of nicotinic acid deficiency.

Other manifestations of riboflavin deficiency include definite ocular changes.

The ocular symptoms most frequently associated with ariboflavinosis are photophobia, sensation of burning, roughness of the eyelids, visual fatigue and sometimes impairment of visual acuity in the absence of refractive errors or pathologic changes in the ocular media. The commonest disturbance is circumcorneal injection, often with invasion of the cornea by capillaries from the limbic plexus.

Some clinicians, having studied deficiency diseases extensively, consider ariboflavinosis as possibly the most prevalent of the avitaminoses. A common observation, however, is that thiamine, riboflavin and niacin deficiencies are likely to occur simultaneously. This is because the three vitamins usually occur together in foods. The diet which is deficient in one will most likely be deficient in the others also. The niacin deficiency of pellagra thus is usually complicated by associated deficiencies of the other two vitamins.

World War II both in the Far East and in Western Europe provided an unparalleled opportunity to study the effects of malnutrition and starvation on large population groups. Starvation in Western Netherlands in contrast to the situation which existed in parts of the Orient at the end of the war did not seem to be complicated by serious vitamin deficiency. The repatriated persons of war from the Japanese hands gave ample proof of the inadequacy of the diet which they had received whilst in captivity. The British were of the opinion that from a large series of prisoners who complained of visual disturbances or ocular symptoms, 6 per cent were found to have signs of serious optic nerve lesions which they attributed to avitaminosis.

Lesions of Vitamin C Deficiency

The classic lesion of vitamin C deficiency is usually a general deficiency in the body. A number of cases of chronic infection of the cornea have improved when large doses of Vitamin C have been taken. Treatment with ascorbic acid has not only improved patients' eyes, but also their general condition. Vitamin C is valuable in many cases of ocular disturbances where the vascular system has not been functioning normally because of some alteration in the blood stream or changes in the blood vessels. If the hemorrhagic retinopathy is associated with diabetes, the latter condition must be treated properly before favorable results can be expected. Many of the hemorrhages appearing in the vitreous because of local arteriosclerosis and general hypertension are improved if large amounts of ascorbic acid and rutin are given daily. Edema of the macular region produced by vascular decompensation often responds more rapidly when 300 to 500 mg. of ascorbic acid and 10 to 32 ounces of orange or grapefruit juice are given daily for several days.

A relation may exist between vitamin C and the production of the adrenal-cortical hormones. This is especially interesting in view of the high concentration of ascorbic acid in the adrenals. Other organs rich in ascorbic acid include the corpus luteum and the anterior and intermediate lobes of the pituitary. Vitamin C has frequently been suggested as a component of a reversible oxidation-reduction system in the body, acting as a hydrogen

transporter. This is an attractive theory, but so far no definite proof of it has been offered. There may also be a relation between vitamin C and vitamin A. Rats on high protein diets deficient in vitamin A develop hemorrhagic symptoms that are alleviated by ascorbic acid. Conversely, vitamin C can moderate the toxic signs of rats given huge doses of vitamin A.

Most ophthalmologists agree that when the lens has changed its protein content so that a cataract is formed, it is unlikely that a reversible chemical process can be produced by diet or other therapy that is at our command. Surgery is really the method of choice when a cataract is formed and practical visual acuity is not present. However, it is important that the patient be restored to good health before surgery is undertaken.

It has been demonstrated that vitamin K is essential for the maintenance of a normal clotting mechanism. Without vitamin K, prothrombin, an essential clotting factor disappears from the blood stream and a hemorrhagic diathesis results. Vitamin K is not absorbed from the intestines unless bile salts are present. Because it is so vital to the normal blood supply of the tissue vitamin K has been used as a supplement to vitamin C and rutin in the treatment of vascular disturbances. The continual use of the sulfa drugs and salicylates in the treatment of uveitis, and chorioretinitis may produce a hypoprothrombinemia and this damage to the blood stream requires vitamin K therapy.

Summary

It is evident from the practice of ophthalmology that the eye and its adnexa may be affected when other parts of the body are subject to changes in structure and function as a result of improper nutrition and hygiene. The ocular lesion should be treated locally with recognized therapy. It is important that a well-regulated diet, supplemented with the essentials, be utilized if a complete restoration of function of the eye is expected. It is apparent that when changes take place in the tissue in the form of optic atrophy, paralysis of the intraocular and extraocular muscles, destruction of the specialized tissue of the retina and choroid, mature cataracts, and deep vascularization of the center of the cornea, no complete restoration to normal should be expected by any form of vitamin therapy externally or internally.

Eyes of Boxers

A study is needed to establish the necessary medical recommendations that will prevent trauma to the eyes of boxers, according to the Medical Advisory Board of the state of New York. Frank R. Ferlaino, M.D., chairman of the Board, says in an article in the October 18, 1952 issue of *The Journal of the American Medical Association* that the Board believes, for the present, the use of the Snellen eye chart would show up any changes in visual acuity. Periodic inspection of the pupil, fundus and eyeball was recommended. The immobilization of the thumb to the body of the glove to prevent thumbing should be evaluated. The Board believes, too, writes Dr. Ferlaino, that it is necessary to have a physician in each contestant's corner of the ring to care for the many injuries that can occur.

When to Operate for Cataract

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Of all the disturbances that produce visual impairment cataract is by far the most favorable, for it is amenable to surgery with an extremely high percentage of success.

THE term "cataract" is an ancient one and it is well authenticated that this visual disturbance and its operative treatment have been known since the days of the early Hindu, Chinese and Greek medical writings. Misconceptions as to cause, treatment and operative methods have persisted from these early days and are still current. Because of the changed surgical concepts developed during the last two decades it is well worth reviewing some of the newer ideas and arriving at a conclusion as to when to operate upon cataract.

The word "cataract" in itself is frightening to the patient, who immediately thinks of blindness and all of its associated disabilities. There are many types of cataract, some resulting from injuries, others from diseases either local or systemic. But the most common type is associated with the process of aging. It is with this last variety that we are concerned in this discussion. However, it should be mentioned that no matter what the type of cataract may be, there is essentially the same pathological change in the lens, where the fibers degenerate because of an increase of their water content followed by dehydration, a change in the salt content of the fluids, and a coagulation and opacification of the proteins. This is not a reversible process, and once the lens has become opaque there is no method of making it again transparent.

Primary Symptom

The primary and most disturbing symptom to the patient is a diminution of vision. The amount of disturbance depends upon the situation of the opacity in the lens, for a small central haze will produce a considerably greater visual loss than opacities in the periphery which leave the center clear.

If only one eye is affected it may be a considerable time before the patient is aware of any visual disturbance, while if small central opacities are present in both eyes the patient knows of his difficulties fairly early. In the initial stages the visual complaints may be of a considerable variety, such as the appearance of black spots, the distortion or reduplication of images, or halos around lights. Also in the early stages the patient may even feel

that his vision has become better, for he develops "second-sight" and finds that he is able to read without glasses. This myopia is caused by a thickening of the lens, is only a transient stage, and with its progression vision becomes considerably diminished until it reaches light perception.

Patient's Reaction

It is during the period of increasing visual loss that the patient first consults his doctor and first hears the dreaded term "cataract." His reaction to this varies, depending upon his mental make-up and upon the manner in which his physician tells it to him. It is important for the ophthalmologist to stress to the patient that of all the disturbances that produce visual impairment, cataract is by far the most favorable, for it is amenable to surgery with an extremely high percentage of success when and if the proper time comes. It is in this selection of the proper time that the greatest change has occurred during the last twenty years.

The patient returns to his ophthalmologist after a varied interval with many questions to be asked, some the results of his own thinking and others suggested by conversations with various individuals. He first wants to know whether there is any medical treatment to stop the development of the cataract or even to clear it up. It is necessary for him to be told that there is no possibility of reversing the opacification of the lens, any more than it is possible to restore a hard-boiled egg to its fresh condition. Also the speed with which opacities progress cannot be controlled either by therapy or by the restriction of the use of the eyes. Many cataracts are of such a slowly developing nature that they do not incapacitate the individual for years, if ever. Others, however, develop with considerable rapidity and within a period of months it becomes necessary to discuss surgery. This variation cannot be influenced by the use of eye drops, the taking of drugs, the injection of lens proteins from beef or fish eyes, the ingestion of vitamins, taking eye exercises or the restriction of the use of the eyes. Yet patients have been told by well-meaning friends that all of these types of therapy have benefited individuals known to them. However, he should be advised that it is of extreme importance for him to be checked by his internist to be certain there are no contributory factors to complicate either the course of the disturbance or operative treatment. Diabetes should be detected and controlled; hypertension should have appropriate therapy; focal infections should be eliminated; and everything done to improve the mental outlook and working habits of the individual. During this period also the ophthalmologist does everything possible to improve the vision of the patient by the use of correcting lenses, magnifying devices, and other optical aids.

Best Time to Operate

The question then arises as to when is the best time to have an operation. Until about twenty years ago the answer was fairly simple, for it was, "when the cataract is ripe." This waiting for maturity of the cataract often entailed a delay and incapacity of many years, during which the patient was not able to earn his livelihood or to carry on a normal life. There was a definite reason for such procedure in those earlier years, how-

ever, for with the extra-capsular type of surgery which was safest at that time, the maturity of the lens was the best indicator of the ease with which the cortex could be completely removed. It had been found that most of the complications and bad visual results following an operation were caused by the retained cortex.

During the last two decades, however, the intra-capsular cataract operation, together with the use of corneoscleral sutures, has radically altered the indications for surgery. In this type of operation it is no longer necessary to use the maturity of the cataract as the criterion, for a lens with a slight opacity can be removed just as easily as one with a mature cataract. In consequence, a new set of criteria has been developed and it is of this that we shall speak.

Intra-Capsular Operation

First, however, it would be well to discuss briefly this intra-capsular cataract operation. The difference between the extra-capsular and intra-capsular type of surgery can best be exemplified by using the analogy of a grape. In the first type, the skin of the grape would be cut and the contents expressed by pressure, leaving fragments of the grape adherent to the skin, which would remain in situ. In the intra-capsular type, the skin of the grape would be grasped, and by a combination of traction and pressure the entire grape would be removed, skin and contents intact. It is obvious that this latter procedure offers by far the most favorable results and should always be the procedure of choice. However, it requires a considerably greater degree of dexterity and skill on the part of the surgeon, and the chances of a calamity are, for the occasional operator, far greater than with the older method.

Complications have been minimized and visual results greatly improved by the suturing of the operative wound, by the use of retrobulbar novocain injections, by sodium pentothol anesthesia, and by removal of the lens through a round pupil. With the present-day technique of the cataract operation we are safe in promising the patient a 95 to 98 per cent favorable chance of the restoration of good vision.

Correcting Lens Must Be Worn

What is this good vision? It should be made clear to the patient that the removal of the opaque lens in itself does not restore his normal sight, for to see well after the operation it will be necessary to wear a correcting lens to focus the eye, in place of the lens that had been surgically removed. It is at this point that some of the difficulties and misunderstandings arise, and it is absolutely necessary that the patient be told about them before operation to prevent great disappointment later. Although the corrected vision in such an operated eye is very acute, the image is about 25 per cent larger than it was in the normal eye, and as a result objects look closer than they did previously. Also, if the other eye still has good vision, it is impossible to fuse the images of the two eyes, and a correcting lens would produce double vision. Under such circumstances, it should be explained to the patient that the correcting lens would not be given until the other eye has fallen below the point of good useful vision, and at which time the operated eye would be corrected and the fellow eye blanked out. It is not until both eyes have had

a cataract operation that binocular vision can be restored by the use of correcting lenses.

From this there arises the question, why operate when only one eye is involved? The answer to this is not a simple one. If one eye has a mature cataract and the other eye a clear lens, it is possible that the patient may go along with this condition for the rest of his life. However, there is a slight danger of hypermaturity and secondary glaucoma, and consequently he should report for observation at six-month or yearly intervals. He also will have the disadvantage of no vision beyond his nose on the affected side. If, however, the second eye has a beginning cataract, surgery should be performed upon the worse eye before the patient reaches the stage of incapacity. The problem of correcting lenses should be explained to him, as mentioned above.

Degree of Incapacity a Factor

When both eyes are affected by immature cataracts the problem again is somewhat different. These were the cases which, in the old days, were doomed to interminable waiting for the cataracts to become ripe, and in the process the ability of patients to earn a livelihood was diminished and their morale greatly affected. Today the only valid gauge as to the time for surgery is the degree of incapacity suffered by the patient. It is obvious that the housewife does not require as much vision as the surgeon or accountant to lead a useful and happy life. Therefore she could wait a considerably longer time and endure a greater loss of vision than the others mentioned. The age and physical status of the patient are also an important guide. Procrastination would be advisable in a frail and elderly individual with a short life expectancy, while a younger and vigorous wage earner with the same type of cataract should be advised to have an operation. It should again be emphasized that the sole criterion for surgery is the ability of the patient to lead his normal life, rather than the stage of the cataract or the degree of visual loss.

There is also the question as to when to operate on the second eye. It is the consensus that good surgical practice does not advocate operating on both eyes at the same time. Thus if the patient should become unruly and break open his wound, or if a secondary infection should ensue, both eyes would nôt be endangered simultaneously. Otherwise, the time for operation of the second eye is entirely the choice of the patient. Some prefer that it be done while still in the hospital, and it can be scheduled for the following week. Others find that with one good eye they can carry on all normal functions of life, and prefer not to have the second eye operated upon at all. The remainder fall between these limits.

The problem of the one-eyed patient deserves a few separate words. Since there is an element of risk, even though a small one, in cataract surgery, this only eye should not be exposed to this risk until it is absolutely necessary. These individuals are usually advised to wait until their capacity for getting around alone has been lost, at which time they have reached the point of "everything to gain and nothing to lose." Technically the procedure is no different in these cases than in others, but the mental strain

is obviously far greater, both for the surgeon and for the patient.

Improvement in Treatment

Every patient contemplating cataract surgery has been regaled by his friends with harrowing tales of the post-operative treatment—how he must lie rigidly quiet in bed, how sand bags are propped against his head; and how various diets are required. There was a basis of fact in all of these stories with the older type of surgery. However, all such procedures have been abolished by the modern method of intra-capsular round-pupil surgery with the use of corneosclera sutures. Patients are now allowed to have the unoperated eye exposed the day following operation or even the day of operation. They are allowed to sit up out of bed the day following operation and permitted to walk around the room one or two days later. Everything is done to keep them relaxed and cheerful, and not to make introspective, nervous individuals of them.

Dangerous Years for Eyes

After 40—Dangerous Years for Your Eyes is the title of a new eight-page leaflet that may be ordered from NSPB at 1790 Broadway, New York 19; price five cents.

It emphasizes that "the years after 40 can be the richest years of life—and the key to their enjoyment is good sight." Presbyopia, or "old sight," as the normal development of the middle years is called, is nothing to be alarmed about; but it is important to remember that any old pair of glasses will not do. Buying them without professional eye examination is dangerous. Failing sight can be the first sign of some serious eye disease which needs professional care.

Dr. Vail Appointed

Derrick Vail, M.D., professor of ophthalmology and head, department of ophthalmology at Northwestern University Medical School, Chicago, has been appointed to serve on the National Advisory Neurological Diseases and Blindness Council. His appointment was recently announced by Surgeon General Leonard A. Scheele of the United States Public Health Service.

Dr. Vail is a member of the board of editors of *The Sight-Saving Review* and a member of the National Society's research committee. He is one of the nation's leading ophthalmologists and has played an important role in the growth and development of ophthalmology in this country. With his new appointment Dr. Vail became one of the twelve council members who advise the Surgeon General on policy matters concerning the National Institute of Neurological Diseases and Blindness. This is one of the seven National Institutes of Health, main research arm of the Public Health Service.

On recommendations of the council, as established by Act of Congress in 1950, the Surgeon General awards grants to scientists in universities and other nonfederal institutions throughout the country for the conduct of research into the neurological and sensory disorders, including cerebral palsy, multiple sclerosis, epilepsy, poliomyelitis and diseases causing deafness and blindness.

The members who sit on this council are leaders in science, education and public affairs. They meet three times yearly at the National Institutes of Health, Bethesda, Maryland.

Notes On an Operation for Detached Retina

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Former Director, Good Housekeeping Institute

The weeks following this delicate eye operation are a rugged test of the patient's fortitude and willingness to cooperate with doctors and nurses. Expressing her gratitude for the splendid skill and care that saved her vision, Miss Fisher makes a few suggestions as to how the recovery period might be made easier.

LATE one afternoon I suddenly noticed a grayness in the corner of one eye. This soon darkened, and when I looked up or down the spot moved in the same direction, blotting out my vision in that area. Puzzled, but not unduly alarmed, I went next morning to the specialist who for over 20 years had made periodic examinations of my eyes. His diagnosis was definite. Retinal detachment.

I learned that the cause of this condition, which I had never heard of before, is often obscure; that it may relate to some other eye difficulty; that it sometimes results from an accident in which one suffers a sharp blow on the head. I could not recall having had such an injury in recent years and the cause in my particular case still remains a mystery.

Quick action, said the doctor, was imperative. Only an operation might save the sight of that eye. The next morning I was in the hospital, and 24 hours later, most fortunately for me, my own doctor and his associate performed the operation.

The suddenness with which all this happened left me quite unprepared for what was ahead. In fact, as I entered the hospital I thought of Christmas some three weeks away and cheerily told myself that I was lucky to get this thing over with before the holidays. I knew some of the special precautions that must be taken to insure the success of this delicate surgery, but was unaware of the many weeks that I must lie quite still, flat on my back. Perhaps to some degree ignorance was bliss, but in the days that followed I wished I might have had a bit of briefing. That is my reason for setting down here a few observations and suggestions.

There was, for example, the matter of my personal affairs. It hadn't occurred to me that for weeks I shouldn't be able even to sign my name. Complications too numerous to mention began to arise, but kind and understanding friends soon came to my rescue. It would have been quite easy to put things in order, had I realized in advance that I would be helpless for an indefinite time.

By far the most trying experience during my recovery was lying on my back and keeping completely still.

Sandbags held my head firmly in position. No matter how tense and restless I was I could not move nor turn. If I had, the stitches might not have held. I was told of patients who had taken the risk of moving—only to make the operation a failure.

Completely immobilized, with eyes bandaged day after day, over-concentration on the repaired eye was hard to avoid. Curious shadowy shapes floated before me, intensifying that concentration. I welcomed any pleasant and interesting diversion, even to turning back my thoughts over the years to recall books I had enjoyed, poetry I had memorized, trips I had taken and gay times with friends.

Visitors from outside the hospital were not allowed for quite some time; and I couldn't use the telephone. The bright spots of the day were the brief visits from friends on the hospital staff. They helped to dispel the depression which I am told so often follows an operation of this sort. A friend sent me a table radio and it really proved indispensable. I don't know what I should have done without it.

Letters Welcome

Letters from friends were of course very welcome. However, I felt myself growing tense and nervous waiting for the nurse to decipher the handwriting! Short typewritten letters met this problem perfectly.

Anticipating the removal of the bandage for periodic examinations, to find if the stitches were holding or not, was always a trying experience and I must confess that I longed for the quieting effect of an aspirin or two before the doctor arrived! But the doctor hadn't ordered it. He may not have thought of it.

I was as careful as possible to keep from sneezing or coughing and I was fortunate in suffering no particular upset or disturbing complications. The weather outside was below zero so I kept warm, with my shoulders covered. And I tried to take an objective viewpoint in considering myself as a "case" and governing myself accordingly. In this respect I had splendid cooperation from my doctors and nurses.

When the day came to remove the bandage and I was fitted with pin point glasses I was afraid to open my eyes! Colored patterns often formed before my sight and worried me. I finally asked the doctor about these and he assured me that they were a part of my recovery. The repaired eye was adjusting itself. Grateful as I was for his splendid skill and care, I couldn't help wishing that he had told me what to expect during this period—it would have saved me much anxiety.

When I was home at last and had to dress my eye for the first time I must confess I felt too shaky and nervous to touch it. A telephone call to a nurse friend and a simple lesson after her prompt arrival met the situation. I had not thought of asking for this lesson before leaving the hospital and no one had offered it.

The chief precautions the doctors and nurses advised as I began to resume my daily routine were not to lift anything heavy, or stoop over to pick up things from the floor. The latter caused me considerable inconvenience until I secured a pair of long wooden "reaching tongs." I still use them and I've been sending them to other convalescents, as they were such a help to me.

The experience of lying very still on

my back for days and days was a rugged one, but it had rich rewards. The operation was a success, and after three years that precious eye is behaving well. I had wonderful attention. Never before had I fully realized the extent to which patients depend upon intelligent nursing, on understanding nurses, and a fine hospital service to make all this possible.

Be Prepared

For those who may find themselves facing a similar operation I might sum up these bits of advice:

Prepare for a considerable period of inactivity. Face it as calmly as possible; a relaxed attitude helps to insure the success of the operation.

Put your affairs in order. Delegate to members of your family or to friends complete responsibility for handling your home and business problems.

Follow the doctor's orders religiously. The patient who said, "I'm going to lie on my side; the doctor won't know," only fooled himself. The doctor knew next morning when he found that the stitches hadn't held, and the operation was a failure.

Ask questions of the doctor (but be brief about it) when a symptom or condition worries you. He will probably reassure you with a simple explanation and save you hours of apprehension. Remember that he is busy and burdened with grave responsibilities, but that he is just as anxious about the success of the operation as you are. If you think a mild sedative will help you over difficult periods ask him about that, too.

Make sure you have a table radio; it will prove to be your greatest diversion. Think pleasant thoughts; try to dispel personal problems; avoid concentrating on your repaired eye.

Ask your family and friends to send you short typewritten letters, news bulletins, and other cheerful messages that can be read easily by the nurse during the time you are not allowed visitors.

As the time nears for you to leave the hospital plan how you can best manage your life at home while you are still on a restricted schedule. Ask the doctor and nurses for exact instructions about any treatment, routine or emergency, that may be necessary during the ensuing weeks.

Above all, keep up your courage. Good eyesight is worth fighting for.

Helen Keller Shrine

Ivy Green, the birthplace and childhood home of Helen Keller has been dedicated as a Helen Keller shrine by the citizens of Tuscumbia, Alabama, where the homestead is located. Miss Keller's 72nd birthday, June 27, was fittingly designated as Helen Keller Day and as the dedication date for the homestead, which consists of about ten acres, the family home and guest house where she was born.

Unable to attend the dedication, Miss Keller sent a message from France, saying in part, "To many friends in Tuscumbia I wish to extend my fondest greetings and to assure them that Ivy Green, where such wonders of renewed life befell me, remains a shrine of happiness in the core of my heart."

1953 NSPB Conference

Hotel Statler, New York City
March 18, 19, 20, 1953

That Boy with a Gun

MERRITT A. EDSON

Major General USMC (ret'd)
Executive Director, National Rifle Association of America

The National Rifle Association believes that its sponsorship of 3,300 Junior Rifle Clubs is a practical answer to the problem of guns for minors. It recommends adoption of a model city ordinance which controls the sale and carrying of air rifles, and places responsibility for proper shooting conduct on parents and guardians.

YOUNGSTERS have a natural affinity for guns. Whether or not this grows out of the fascination for power which a firearm suggests, guns have been popularized as grown-up play weapons which populate a boy's fantasy with gladiatorial horsemen of the Old West, underworld Prune Faces and their pursuing Dick Tracys, heroic earth-bound G-Men and futuristic winged supermen from outer planetary reaches.

Because tragedies sometimes result from the relationship of boy to gun, parents and interested groups are deeply concerned and are often at a loss to know how to cope with this problem. Chief among the tragedies has been the loss of eyesight caused by accidental or indiscriminate firing of the so-called BB gun. It is because of the many eye accidents to youngsters, resulting in loss or partial loss of sight, that the National Society for the Prevention of Blindness, understandably, is interested in air gun controls.

The National Rifle Association of America, a 300,000-strong shooting organization headquartered in Washington, D. C., shares in the Society's desire to prevent eye accidents. Along with the Society, it supports the idea of proper regulation and control of the distribution and use of air guns.

Adopting the Scout slogan, "Safety through Skill," the NRA provides what it considers a practical answer to the problem of guns for minors: Teaching youngsters to do well and correctly that which they will do anyway.

The fascination of firearms which children feel should be directed into constructive channels. To this end the National Rifle Association has built its junior rifle program, a comparatively young activity which is dedicated to moulding a more alert, considerate and happy band of American youngsters. It also gives boys an introduction to a type of training which will be invaluable should they be

called to military service. But that gain is a by-product of such training—wholesome recreation, gun safety, a respect for the rights of others, and valuable lessons in good citizenship.

There are currently 3,300 Junior Rifle Clubs in this country. Youngsters belonging to them annually earn more than 150,000 proficiency awards given by the NRA in the form of insignia, certificates, brassards and medals, which attest to their ever-increasing skill with the rifle. With knowledge and skill comes safety.

Growth of the Clubs

Junior clubs first were developed as a part of the Association's program in 1925. In the ensuing years veteran instructors have accumulated an experience which proves that boys and girls, with proper training, are safer bets against accidents than their careless elders. In the 27 years of the program not one major gun accident has marred the training course. This is a record that probably cannot be duplicated by any other junior sport. For the past two years the program has included the air rifle as well as the small bore or .22 calibre weapon.

The clubs are organized with a minimum of 10 youngsters. For groups of less than 10, Junior Patrols may be formed. Instructors are chosen not alone for their expert knowledge of arms, but for their understanding of boys and girls as well. The first step in training is gun-safety—learning rules that are repeated and emphasized until safe habits become second nature. Each instructor has his own way of making these rules stick. With youngsters, if reason fails, the answer is easy—penalty of suspension from the range. Adult hunters aren't quite so easily directed.

Proof of the growing conviction that marksmanship training is a weapon against juvenile delinquency and preventable accidents is seen in the widespread sponsorship of these clubs. Among groups who develop and sustain junior rifle clubs are some of the organizations most concerned with building character in youngsters—police departments, service clubs, summer camps, fraternal orders, church groups, Boy Scouts, YMCA, public and private schools.

Veterans of recent overseas combat have been quick to endorse such youth training. An ex-Marine was quoted recently:

"I remembered some of the country boys who had come into the Corps with a background of hunting and handling guns. They had fired guns and they had killed with them. They knew what a gun could do, and they knew how to approach and handle a gun. It was easy to teach them safety rules.

"And I remembered some of the boys who had never touched a real weapon before the Corps handed them a .30 calibre rifle that could shoot three miles. They were awkward, afraid, and, because they didn't know guns, often stupid. They pointed carelessly, picked up a rifle with a finger against the trigger, and feared the kick from the butt more than the slug from the muzzle. It was a hard job teaching them to be careful and some of them never were at ease with their rifles.

"I decided that even though my son might never carry a military rifle, it wasn't fair to make him grow up in ignorance of how weapons should be handled."

So far as air rifles are concerned, legislation which regulates their possession and use, while permitting supervised instruction, is the ideal answer. Thus the National Rifle Association can foster and guide its recreation and safety program as the psychological and practical solution to youthful affinity for weapons. Statutes that regulate reasonably and wisely the distribution and use of arms always have had the firm support of the NRA. In fact, the association offers a model city ordinance which, if adopted, would throw needed precautions around the sale and carrying of air rifles, while permitting the supervisory training essential to safety.

Provisions of Ordinance

Under provisions of this ordinance, minors may not obtain use of air guns and ammunition except on approval of a parent, guardian, or adult instructor. They may not carry air guns on any public property or discharge them except on properly constructed target ranges, or on private property under adult supervision, thereby placing responsibility for proper shooting conduct on parents and guardians. The ordinance provides penalties for both dealers and individuals found guilty of violating its terms.

The only safe judgment of a program is its performance. In the case of the NRA Junior Safety Program, New York State provides a convincing answer. In that state the law requires safety training before youngsters are given hunter's licenses, and recognizes the National Rifle Association as its training agency. The state's boys and girls who took the NRA Junior Hunter's training course last year did not figure in any of the hunting accidents in that state in 1951, although many young hunters, not so trained, were involved in accidents.

The NRA thinks New York has taken the realistic attitude. Young people love to shoot. They will be even more fascinated by guns they cannot handle. Given competitions to enter and medals to win, they will make a game of skill and safety. Forbidden to shoot, they will seek out firearms with a consuming curiosity, and when they lay hands on them, as they inevitably will, ignorance and excitement will all too often produce tragic results.

Award to Homer Folks

"In recognition of his long and distinguished service in the cause of better health for the citizens of New York State," Homer Folks, honorary vice-president of NSPB, recently received the New York State Public Health Association's first annual Hermann M. Biggs Memorial Award. The award consisted of a medal and the following citation:

The New York State Public Health Association takes pride in presenting its first annual Hermann M. Biggs Memorial Award to Homer Folks in recognition of his long and distinguished service in the cause of better health for the citizens of New York State. Among his many distinguished achievements are his service as one of the drafters of New York State's public health law; his early leadership in the fight to control tuberculosis; his active and distinguished membership on the Public Health Council since its creation in 1913, and his pioneer work in the development of facilities to improve mental health on a community-wide basis.

Are We Ready to Let Children Shoot?

C. EDITH KERBY

Associate for Statistics and Analysis
National Society for the Prevention of Blindness

There is potential danger in the promotion of junior rifle clubs where there is no adequate control legislation.

IN the foregoing article General Edson proposes that children be taught marksmanship and gun safety concurrently as a means of preventing injuries from shooting accidents. What are the implications of his suggestion for the program of prevention of eye injuries to children? Prevention of blindness workers must decide.

Some among us would prefer to have use of guns by children prohibited entirely. This is especially true of individuals having personal knowledge of youngsters who have lost the sight of an eye in a BB gun accident. Such persons react unfavorably to the mere thought of children as sharpshooters. They fear, for example, that encouraging rifle clubs may mean more dangerous weapons in more homes where they become accessible for use off the rifle range and by other children in the family, not just the junior rifle club members.

At the other extreme will be those who, having noted the average boy's interest in gunplay, are quite willing to accept without question the idea that this interest may be channeled into supervised club activity that appears to be safe.

From the point of view of the National Society for the Prevention of Blindness neither reaction seems wholly realistic. Junior rifle clubs, with membership reaching down to the junior high school age level, are already in existence in many places. Moreover, the fact that their members are instructed not only in marksmanship, but in safety, is definitely in their favor, as is also the fact that their leadership concedes the importance of legislation aimed at control of sale, possession and use of rifles to prevent their use elsewhere than on an approved rifle range. A local ordinance of this type has been drafted by the National Rifle Association. This is fine, but it does not go quite far enough.

There is potential danger in promotion of junior rifle clubs in areas where there is no adequate control legislation. Therefore prevention of blindness workers and other interested groups should be more active in promoting such legislation if we are to prevent eye injuries from air rifles, BB guns and other so-called "toy" weapons. For maximum security, laws should be state-wide in appli-

cation and provide broad coverage of potentially dangerous items, since any missile propelled by whatever means is a potential hazard to eyes.

At the present time adequate control legislation is almost non-existent. Comparatively few states have passed laws on this subject. As the appended brief summary of a number of state laws shows, even those which contain some good features have loopholes.

The drafting of a model law to serve as a guide to state legislatures is in order. Suggestions for essential features of such a law will be welcome at the National Society for Prevention of Blindness headquarters.

SUMMARY OF SOME STATE LAWS CONTROLLING USE OF AIR GUNS AND OTHER WEAPONS

Connecticut

Prohibits possession, except with written permission, of any sling shot, air rifle, BB gun, black jack, sand bag, metal or brass knuckles, stiletto or any knife the edged portion of the blade of which is four inches or over in length, or any other dangerous or deadly weapon or instrument. Expressly permits rifle clubs and rifle ranges.

Florida

Prohibits use for any purpose by minor under 16 of BB guns, air rifles and 22-calibre rifles, except under supervision and in presence of adult.

Kansas

Prohibits sale, trade, gift, loan or otherwise furnishing to minor (or person of unsound mind) of any pistol, revolver, toy pistol by which cartridges or caps may be exploded, or any dirk, bowie knife, brass knuckles, sling shot or other dangerous weapons.

Maine

Prohibits sale or gift of air rifle to minor, under 14, and sale or gift of any dangerous weapon or firearm to minor under 16, except where parents, guardians, teachers or instructors furnish same for hunting or target shooting outside thickly settled areas or in licensed shooting gallery.

Massachusetts

Prohibits use of BB gun or air rifle in any street, alley, public way, railway or railway right of way; use, or possession while in public place, of same by minor under 16, unless accompanied by an adult or is holder of sporting or hunting license.

Minnesota

Prohibits sale, gift, loan or furnishing of any firearm, air gun or ammunition to minor under 18 except with written consent of parent, guardian or police.

New Hampshire

Prohibits sale or gift of air rifle or toy pistols or firearms for the explosion of blank cartridges.

New Jersey

Prohibits manufacture, sale, use or possession of air or spring guns or similar weapons projecting small missiles with sufficient force to injure.

New York

Prohibits sale, loan, lease or gift to minor under 16 of any knife with automatic device for opening or other dangerous knife, or any gun, revolver, pistol or other firearm, or any air-gun, spring-gun or other instrument or weapon in which spring or air is propelling force, or any toy pistol in which loaded or blank cartridges may be used, or ammunition therefor.

Oklahoma

Prohibits use of any firearm, air gun or other weapon or missile in public place or where there is any person to be endangered thereby.

Pennsylvania

Prohibits use in any city or borough of flobert rifle, air gun, spring gun, or any implement which propels with force a metal pellet of any kind.

Rhode Island

Prohibits sale to minor under 15 of machine gun, pistol, rifle, air rifle, air pistol, blank gun, BB gun, or other instrument from which steel or metal projectiles are propelled. Also possession or use of same by such minor except in presence of adult on approved rifle range or when carrying to or from such range in a case and unloaded.

South Dakota

Prohibits use of firearms, air guns or other weapons or missiles in public place or where there is any person to be endangered thereby. Also manufacture, sale, possession or use of sling shot or similar weapon.

Texas

Prohibits use of firearm, or air rifle of any type capable of discharging pellet at velocity of 300 ft. per second, in any public street or alley or within 100 yards of business house.

Washington

Prohibits use of firearm or air gun in public place or where any person might be endangered. Also possession or use by minor under 14 except in presence of parent or guardian.

POB in Baltimore

Three thousand dollars a year will be spent to provide eyeglasses for patients under the city medical care program of the Baltimore City Health Department, reports the Maryland Society for the Prevention of Blindness in its *Membership News*. The needed eyeglasses will be supplied upon the prescription of an ophthalmologist working in the eye clinic of a hospital or the Baltimore City Health Department, provided the patient has been referred to that clinic by a medical care clinic. Medical care clinics under the program are conducted at the Johns Hopkins Hospital, South Baltimore General, Provident, University of Maryland, Sinai and Mercy Hospitals.

Health Pioneers Honored

The following men, distinguished for medical research and public health achievement, were among those who received the 1952 Lasker Awards of the American Public Health Association at its 80th annual meeting.

Brock Chisholm, M.D., of Toronto, Canada, director-general of the World Health Organization, "for uniting the nations of the world in successful and constructive collaboration to attain the highest level of health for all their people."

Howard A. Rusk, M.D., director of the Institute of Physical Medicine and Rehabilitation of New York University's Bellevue Medical Center, New York, "for distinguished service to humanity through rehabilitation of disabled men and women and for marked achievement in the development of professional training in this field."

Conrad A. Elvehjem, M.D., chairman of the biochemistry department, University of Wisconsin, "for distinguished contributions in biochemical and nutrition research: especially for identifying the mineral, vitamin and amino acid requirements for health."

Sir Macfarlane Burnet, M.D., of Melbourne, Australia, "for fundamentally modifying our knowledge of virus and the inheritance of characteristics by viruses."

C.-E. A. Winslow, Dr. P. H., of Yale University, New Haven, Connecticut, "for more than half a century inspiring and inspired leader, teacher and exponent of public health for the nation and the world."

Meeting the Needs of Partially Seeing Children in Rural Areas

The Committee on Education of Partially Seeing Children is one of the standing advisory committees of the National Society for the Prevention of Blindness. In its 1951 report, the committee emphasized the importance of providing educational opportunities for partially seeing children in their own communities. If this is to be accomplished, programs for meeting the needs of partially seeing children in rural areas must be established. This was the focus of the committee's discussions at its meeting in New York City on November 7, 1952. The official report of this meeting follows.

ACCORDING to the best available estimates there are at present about 60,000 partially seeing children in the public schools of the United States. Examination of existing records shows that fewer than 8,000 of these children are enrolled in school systems that provide the special services and materials needed to equalize their educational opportunities. The special facilities that are available are concentrated almost entirely in the large urban centers; the partially seeing child in the rural areas of most of our states has up to now received little attention or assistance.

The purpose of this committee report is to present concrete suggestions for organizing and administering programs designed to reach partially seeing children living in rural areas and to provide specific information that can be used effectively by all who have responsibility, in whole or in part, for the education of partially seeing children.

To facilitate organization of ideas and to develop a logical sequence of educational patterns, the report is divided into sections corresponding to the types of administrative operation currently in force in our public schools and affecting educational programs in rural areas.

County Superintendent

Many partially seeing children go to school in counties that do not have direct or ready access to specialized consultative and supervisory services. But in most states, county schools are administered and supervised by desig-

nated county superintendents who, in many cases, will be the sole educational administrators available to the teachers in their counties. With even this minimal coverage, a school can formulate and effectuate realistic and workable plans for adapting the school program to the needs of partially seeing children.

As a basis for estimating the size and extent of the problem, the county superintendent will need to know that, on the average, about one child in 500 of the school-age population falls within the category of the partially seeing and that each partially seeing child will require individualized consideration in accordance with the medical diagnosis and prognosis of his eye condition, the results of psychological examinations, and other pertinent appraisal procedures available in the school and community.

Therefore, the first step in inaugurating any program for partially seeing children is that of county-wide vision screening to locate all children with visual defects. This does not involve the use of expensive apparatus, the service of trained technicians, or the expenditure of very much time. Several significant research studies indicate that the classroom teacher who has been trained to use the Snellen chart correctly can screen out the majority of children who need to be referred for eye care, if she combines the results of Snellen testing with her own observations of the child's behavior in a variety of visual situations. Since Snellen testing requires only about one minute per child, annual screening of the children in her classroom should not be a burden to the classroom teacher. Information regarding availability of standardized charts and directions for giving vision tests can usually be obtained from the state department of public health or from the state department of education, as well as from the National Society for the Prevention of Blindness.

The purpose of any case-finding program is to obtain necessary corrections for those with remediable defects and to locate the children who will need some modification of their educational program even after the best medical and optical correction. If there are no eye specialists in the county, it will be necessary to work out a plan whereby children in need of follow-up can be transported to the nearest clinic or appropriate specialist. Members of service clubs, such as the Lions, Rotary, Parent-Teacher Associations, and other community groups are usually very willing not only to provide transportation for children where necessary but also to defray the costs of obtaining needed corrections for children whose families cannot afford to do so.

Accurate records of the screening results and of all follow-up services should be kept for each child and should be filed in the school in which the child is enrolled. Records need not be complex or involved but they should contain all information essential to a complete understanding of what can rightfully be expected of the child; and the information should be couched in language intelligible to the school personnel dealing with the child. In this connection, the county superintendent may wish to devise a simple, one-page data and question sheet to be filled in by the examining specialist and returned to the superintendent. This form should contain

basic questions related to the need for glasses, their use, restrictions in certain types of physical activity, preferential seating, arrangements for close eye work, date of next visit to the eye specialist, and other problems of interest to the teachers working with the child.

All the foregoing procedures are preliminary to the actual classroom management of the partially seeing child and all are important in providing an adequate background for planning the educational program.

Since the average classroom teacher has had little, if any, orientation to the problems of partially seeing children, an in-service training program will be needed. In practically every county, teachers institutes and workshops are held periodically and the county superintendent should plan to schedule some time for presentation of material related to vision testing, visual environment, and education of partially seeing children. If invitations are extended long enough in advance, specialized resource people are usually available for major participation in such institutes. Several state departments of public health employ vision consultants who can assist with such general topics as case finding and improvement of classroom environment. Some state departments of education have supervisors in the division of special education who are qualified to discuss the health and education of partially seeing children, and most of the states have a director of special education who will be able to channel requests for specialized services to appropriate sources. Faculty members of colleges and universities are also participating in a variety of in-service programs in health and special education. Upon request, staff members of the National Society for the Prevention of Blindness participate each year in a large number of such service training programs in all parts of the nation.

The county superintendent can circulate to his teachers a mimeographed list of sources of literature and other material related to the education of partially seeing children.* Such material can be secured either from the state director of special education or from the National Society for the Prevention of Blindness.

Although these measures alone will not succeed in solving all the problems, they should serve the partially seeing child in the schools of his own community, and also assist him and his teachers in utilizing existing resources to best advantage. The county superintendent is the key person in initiating the program and in providing the inspiration and encouragement needed to keep it alive and growing.

County Supervisor of Elementary Education

When, in addition to the county superintendent, there is a county supervisor of elementary education, more specific and more frequent assistance can be given to classroom teachers who have partially seeing children in their groups. Since methods of teaching reading, writing, and arithmetic are the same for normally seeing and partially seeing children, the supervisor's additional responsibility becomes chiefly one of obtaining and transmitting information about such

*The committee is now preparing a pamphlet on suggested procedures for meeting the needs of partially seeing children that can be applied by classroom teachers.

special materials as the partially seeing child needs to develop the fundamental skills.

During periodic visits and conferences with classroom teachers, the supervisor can discuss kinds of special materials available, methods of adapting these to specific teaching-learning situations, and alternative procedures that can be used effectively in the absence of special materials. For example, if a partially seeing child needs arithmetic material in large type and none is available for use in the county, the classroom teacher can be encouraged to allow him to do much of his work on the chalkboard. Also in every county there is usually someone who will volunteer to reproduce essential material by hand, especially if the supervisor explains the importance of the project to the child, the school, and the community. If a large-type typewriter is available, much reading and arithmetic material can be prepared easily and inexpensively. Sometimes this is done by a parent or member of a service organization and sometimes by high school students working under the direction of the supervisor or classroom teacher.

In states where there is a full-time director of special education, the county supervisor of elementary education will have ready access to additional resources, both material and personal; and county supervisors should utilize these to the fullest extent. Sometimes the interest of those in the county office is the chief factor in stimulating state personnel to augment their interest in and concern for partially seeing children and to provide adequate budgetary allowances for the special needs.

The success of this kind of educational approach depends primarily on the development of democratic working relationships between the county supervisor and the classroom teacher. If the elementary supervisor and teacher are accustomed to working together in solving classroom problems, those relating to management of the partially seeing child will be handled without undue concern or stress.

State Director of Special Education with One Assistant or None

In the majority of the states there are now full-time directors of special education who have responsibility for administering programs for all types of exceptional children. Many of the directors have no assistants; this complicates greatly the problem of disseminating adequate and accurate information pertinent to all areas of special education. Since some of the directors may have had little formal education in or experience with technical problems related to the partially seeing child, in setting up programs they will want to contact appropriate national official and voluntary agencies to obtain the best information currently available. This procedure will serve as the basis for developing a sound plan of organizing whatever facilities the limits of budget and staff will allow; it will also minimize the possibility of establishing programs poorly suited to the local needs and of purchasing expensive equipment and materials that are outmoded or unnecessary.

Even when a state director has no auxiliary staff, there are several measures he can institute to assist the local schools in providing needed facilities for partially seeing children. One of

these is to establish a repository of approved special materials, such as large-type books, typewriters, magnifying devices, and auditory aids, which can be borrowed by local boards of education for use with partially seeing children in their communities. A complete and up-to-date inventory of all items in this repository should be sent to county superintendents and supervisors of elementary education so that they, in turn, will be better able to advise and assist the classroom teachers who will use the special materials. Such a repository, if operated properly, will provide maximum service at minimal cost. The expensive pieces of equipment can usually be obtained as gifts from Lions Clubs, Parent-Teacher Associations or other groups interested in the health and welfare of children.

But availability of special materials does not in itself assure optimal or proper use; in-service education of all persons in contact with the partially seeing child will be necessary. The state director of special education can and should take the initiative in devising an effective and varied in-service program. Periodically, news letters are circulated from the central office to county superintendents and supervisors; issues pertinent to the partially seeing child can logically be incorporated in these. Articles written by specialists can be published in the official journal of the state teachers association. Special institutes and workshops on problems of the exceptional child can be arranged to include consideration of the education of partially seeing children. These meetings can be planned on a countywide, regional, or statewide basis and should be open not only to school personnel but also to other professional groups such as social workers, nurses and doctors, who work with partially seeing children and their families. Many colleges and universities are greatly interested in cooperative planning of such meetings and will gladly make both their facilities and staff members available.

Each year scholarship funds are made available to qualified teachers and supervisors interested in working with partially seeing children. The state director can encourage educators in his state to apply for these scholarships. In states with large rural populations, it is very important for the elementary supervisors to have special preparation in the area of the partially seeing, since the supervisors work with all classroom teachers and can therefore use the special information on a very broad front.

The state director who must work without a staff cannot be expected to participate directly, to any great extent, in any single phase of the total program. But he should constantly generate interest in the problems of partially seeing children and give this important area of special education its proper place in the total program.

State Director with Two or More Assistants or Regional Supervisors

It may not be feasible, in the foreseeable future, for most states to employ individual specialists in each area of special education. Several states already have two or more supervisors of special education in addition to the director. In some cases, these supervisors divide their responsibilities on the basis of the major categories of exceptional children: one supervises

the program for the mentally handicapped and the other, for the physically handicapped. In other instances, each supervisor works with all groups of exceptional children in a prescribed geographic region of the state. Regardless of the plan utilized, every supervisor who is charged with responsibility for partially seeing children should have completed a basic course in the area. Supervisors who work with several types of exceptional children should have at least minimal education and experience in each area of supervision. Efforts should be made to prepare rural consultants to handle several types of exceptional children and to serve several counties.

The director should have major responsibility for delineating the functions of each member of his staff, for allocating the geographic and other assignments, and for coordinating all phases of the program.

Full-time State Supervisor of the Partially Seeing

At present only a few state departments have supervisors who are devoting full time to problems of the partially seeing child. Where full-time, high-caliber supervision is available, there is greater opportunity for periodic personal visits with county superintendents and supervisors; for keeping abreast of recent research and literature; for planning and conducting specialized institutes and workshops; for cataloguing and evaluating new materials; and for experimenting with new approaches to educating partially seeing children. However, these opportunities are seldom fully realized because of the large geographical areas to be covered, the time needed for routine supervision of organized classes for the partially seeing located in the urban centers, and the pressure of such required office duties as record keeping, report writing, and conferences with parents and others.

If the partially seeing child in the rural areas is to be reached with adequate services, it will be necessary for the supervisor or consultant to concentrate less time and attention on the supervision of standard existing facilities and more on those measures which will assist county personnel in identifying and solving their problems. Such a shift in emphasis may require some changes in the over-all philosophy and methodology of the division of special education.

It is evident that this report is not an exhaustive consideration of all procedures that can be used effectively in every type of administrative setup. Nor is it an attempt to set forth theoretical procedures that may prove of value in the future. It is an account of methods that have been tried and tested in many parts of the United States and that have proved to be workable and successful. If applied with modifications in line with the local individual situation, the suggestions will assist in filling some of the patent gaps that now exist in our programs for educating partially seeing children in rural areas. To solve the long-range problem, however, will necessitate restructure of our basic teacher education curricula so that all prospective teachers will be given at least minimal preparation in the principles of child growth and development, case-finding techniques, use of records, follow-up procedures, provision of hygienic classroom environ-

ment, and education of partially seeing children.

Respectfully submitted:

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NSPB Does Not Raise Funds by Sending Sunglasses

The NSPB does not raise money by sending sunglasses and then asking for contributions in return, a practice which does not meet with the approval of the National Information Bureau or the Better Business Bureau. This announcement is made due to the fact that a group in the east which has a name similar to that of the National Society is now utilizing this method to raise funds, and should not be confused with NSPB.

Vision Testing in Grand Rapids

A news item in the last issue of the REVIEW on the school vision testing program at Grand Rapids, Michigan, contained a misstatement which we hasten to correct. It was reported that "vision screening in the elementary grades . . . will be begun for the first time this school year." The fact is that a vision testing program has been administered in Grand Rapids for many years. In the fall of 1952, however, the testing in certain elementary grades was for the first time assigned to the teachers.

Outlining the development of this work, Mrs. Robert C. Breed, executive secretary, Grand Rapids Association for the Blind and for Sight Conservation, states that vision testing was at first done by the school nurses. Every child was checked three times during his school life and more often if symptoms indicated the need. In 1948 the Michigan State Health Department gave impetus to an improved program. A trained technician did the testing and the project was gradually enlarged to include grades 1, 3, 5, 7, 9, and 11. Later a second technician was employed.

Last fall, with the joint cooperation of the public and private school systems and the State Health Department, teacher vision testing in grades 2, 4, 6, 8, 10, and 12 was introduced as a recommendation, not a mandatory order. Thus in future a vision screening will be available each year from the first grade through high school.

All concerned with this program over a period of years are to be congratulated on the progress that has been made.

The Influence of Size of Type on Speed of Reading in the Primary Grades*

WALTER J. McNAMARA
Coordinator of Educational Research, I. B. M.

DONALD G. PATERSON
and
MILES A. TINKER
University of Minnesota

Results of this study appear to support the view that variation in typography is relatively unimportant until reading skills are stabilized. The authors emphasize the fact that size of type used for primary grade books should be based on considerations other than speed of reading.

WRITERS in education and psychology have been concerned about the typography employed in children's books for many years. As early as 1901, opinion was crystallized to the effect that large type should be used in the first grade and smaller sizes introduced in the later grades. Reports of experimental investigations on the subject began to appear in 1922. The few attempts that have been made to determine an optimal size of type for books to be read in the primary grades resulted in conflicting findings and recommendations. Even today printing practice is in line with the opinions first formulated by Shaw[10] in 1901.

This article is based on a study which was undertaken to determine the effect of variation in type size upon the speed of reading by children in the first three grades of the elementary school.

Since existing tests for measuring speed of reading were not satisfactory for the purposes of the present investigation, a new test was constructed. The requirements of such a test include: (1) control of vocabulary and sentence structure so that the material can be comprehended without difficulty; (2) an objective check on accuracy; (3) measurement of speed with comprehension relatively constant; (4) material such that all the working time is devoted to reading (i.e., no picture examination and marking); (5) alternate forms that may be employed in group testing; and (6) enough material to yield a reliable sample of reading performance.

Items in the test consisted of sentences as units. Check on understanding was achieved by having the pupil underline one word of two possible choices. The following is a sample:

The horse was in the (1) barn (2) sky

* Ph. D. thesis completed by Walter J. McNamara at the University of Minnesota under the direction of Donald G. Paterson and Miles A. Tinker. 1938.

Items containing from 6 to 9 words each were constructed. Experimental testing and five revisions resulted in three forms of 35 items each. The lowest accuracy for any item in Grade 1A was 84 per cent. However, when pupils in all three grades are included, the accuracy was 94 per cent.

A survey of 169 books designed for use as readers in the first, second and third grades revealed that type sizes from 10 to 18 points were used. In order to cover this range and to extend somewhat beyond it, the test materials were printed in 8, 10, 12, 14, 18 and 24 point type. All materials were printed in Scotch Roman type face with 6 point leading on eggshell paper stock. Each test item was on a single line so the larger type sizes produced longer lines. A practice exercise accompanied each test form. Material in 14 point type served as the standard in Grades II and III, but 18 point type was used as the standard in Grade I.

Usable test scores were obtained from 3,050 pupils: 150 for each comparison in the second and third grades, and 70 each in the first grade. Pupils in grades 1A, 2B, 2A and 3B were tested and comparisons between the standard and each of the other type sizes were obtained in each grade. All testing was done by Dr. McNamara. Time al-

TABLE I

COMPARISON OF THE DIFFERENCE BETWEEN THE MEAN SCORE ON FORM A, 14 POINT, AND THE MEAN SCORE ON FORM B VARYING IN TYPE SIZE (8, 10, 12, 14, 18, and 24 POINT)

(In Each Sub-group N = 150 Pupils in Grade 3B)

Test Group	*Test Form and Size of Type*		*Mean*	*P.E.M*	*Corrected* Difference Between Means In*		*P.E. diff.*	*r*	$\frac{D}{P.E._{diff.}}$
					Sentences	*Per Cent*			
(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
I	A	14 pt.	21.64	.32	0.00	0.0	.16	.87	0.00
	B	14 pt.	21.21	.28					
II	A	14 pt.	21.57	.30	−0.65	3.2	.17	.84	3.82
	B	8 pt.	20.49	.28					
III	A	14 pt.	21.88	.28	−0.35	1.7	.16	.83	2.19
	B	10 pt.	21.10	.26					
IV	A	14 pt.	21.60	.31	−0.24	1.1	.16	.87	1.50
	B	12 pt.	20.93	.30					
V	A	14 pt.	21.97	.31	−1.17	5.7	.16	.86	7.31
	B	18 pt.	20.37	.27					
VI	A	14 pt.	21.41	.28	−0.72	3.6	.17	.80	4.24
	B	24 pt.	20.26	.26					

* Correction = 0.43 sentences.

lowed was decided from preliminary work and was set so that the best readers would not quite finish the test. These times varied from 1'30" to 2'30" on the different forms as used at the different grade levels. No test paper was used that had less than 90 per cent correct of the items attempted.

Results and Discussion

A sample table of basic data is shown in Table I for pupils in Grade 3B.

Test Group I is the control group. The results in this group reveal the need of making a correction of +0.43 on Form B in each experimental group to achieve equivalence of the two test forms (A and B) used. The correlations in column 8 demonstrate fairly high reliability of the measuring instruments. These coefficients are typical of all additional comparisons listed in successive tables presented in the thesis but not shown here.

The comparisons in Table I reveal that third grade pupils read material in 8 point type 3.2 per cent slower than material set in 14 point type. This difference is significant at the 1 per cent level as shown by the critical ration in column 9. Material in 12 and 10 point type is not read at a significantly different rate than in 14 point. But texts in 18 and 24 point type are read significantly slower than in 14 point.

When the scores on Forms B and C are compared for the same third grade pupils, the trends are similar but not the same. Materials set in 8, 18 and 24 point type are read more slowly than in 14 point but texts in 10 and 12 point are read significantly faster. The overall picture for third grade pupils is that 10, 12 and 14 point type produce faster reading than smaller or larger sizes with a suggestion that both 10 and 12 point are better than 14.

Tables similar to Table I were constructed for results in Grades I and II. These are presented in McNamara's thesis.[8] Only the trends in the data will be indicated here. In Grade 2A, using Forms A and B of the test, materials in 8, 10, 12, 18 and 24 point type were read significantly more slowly than in 14 point. But for the Form C versus B comparison, no highly significant differences between any of the type sizes were discovered. In Grade 2B this trend toward no differences becomes more prominent. Neither in Form A versus B nor C versus B were there significant differences in reading speed for the different sizes of type.

In Grade 1A the 18 point text was the standard. The results are inconclusive. For the Form A versus Form B comparison, no significant differences between type sizes appeared. But when Forms C and B were compared, texts in 10, 12 and 14 point were read significantly faster than in 18 point.

When all data are considered, the trends, although not conclusive, seem to be as follows:

(1) In Grades 1A and 2B variation in size of type has little consistent effect on speed of reading.

(2) In Grade 2A, there is no differential effect of type size or a slight advantage for 14 point.

(3) But in Grade 3B, there is a prominent trend for faster reading of material set in 10, 12 and 14 point type, particularly 10 and 12 point.

(4) It appears that type size as a typographical factor is relatively unimportant as far as effect on speed of reading is concerned during the first two grades, but as reading skill develops to the level found in the third grade, size of type begins to have an effect.

Interpretation of the findings given above may be aided by noting results reported by other investigators. Buckingham[4] investigated the effect of 12, 14 and 18 point type in varying line lengths on the reading performance of second grade children. He found that 12 and 14 point were better than 18 point, with 12 point best of all. In a similar study of 12, 14, 18 and 24 point type with first grade readers, Buckingham[5] again found that 12 point produced fastest reading. However, the differences found were small.

Blackhurst[2, 3] investigated the effects of type size on speed of reading in the first four grades. In Grade I he found no significant differences in speed for 14, 18, 24 and 30 point type; in Grade II, no significant differences for 10, 12, 14, 18 and 24 point type; in Grades III and IV together, he found 18 point type to be read significantly faster than 14, 12, 10 or 8 point. Blackhurst's results are somewhat difficult to interpret because of the materials used and the procedure which was followed. In general, the trend of the findings by Buckingham and Blackhurst is that variation in size of type has relatively little effect upon speed of reading in the first two grades.

This lack of effect of type size variations upon speed of reading in the early grades is probably a function of growth factors in reading proficiency. Paterson and Tinker[9] have demonstrated that type size has a definite effect upon speed of reading for adult readers. They found that 9, 10, 11 and 12 point type was read with equal speed when set up with optimal leading and line length. But 6 and 8 point type slowed reading rate significantly. It is well known from such studies as Buswell[6] and Ballantine[1] that the mechanical aspects of reading (eye movements; rate) become relatively stable at the fourth grade level although there is some further improvement to about the eighth grade. It is probable that prior to achieving this stability in reading skill, typographical variations have little influence upon rate. The conclusions of Gates[7] support this view. After surveying the available data concerned with the influence of line length upon speed of reading and carrying out an experiment with first grade readers, he concluded that there is no evidence available which permits specification of optimal line lengths for materials to be read by young children.

Results obtained in the present study appear to support the view that variation in typography is relatively unimportant until reading skills are stabilized. The lack of significant differences in reading rate with changes in type size for the first two grades, and a hint that 10, 12 and 14 point type is read faster than larger or smaller sizes in Grade III are in harmony with this view. By the time children get part way through Grade III, their reading skills are approaching the stabilization achieved in Grade IV. It is reasonable to expect some effect of type size to appear and it does appear. Furthermore the trend is toward the sizes of type that are most

effective in producing fast reading by adults.

The question may now be raised concerning whether these results, which are in terms of speed of reading, should be employed for specifying the sizes of type to use in books read in the elementary grades. First let us note that rate of reading is not or should not be an issue in the primary grades. These years are devoted to developing word recognition techniques, vocabulary knowledge and comprehension. Outside the avoidance of dawdling, rate of work is of secondary importance.

The size of type to be used for printing books for use in the primary grades should be based upon other considerations than speed of reading. The fact that first grade children read material printed in 8 point just as fast as in larger type sizes does not mean that it is just as well to use 8 point type for young children's books. In other words, rate of reading should not be employed as criterion for specifying type size at this level of learning. This is not the place to present support for other criteria. Nevertheless, it might be pointed out that in the primary grades, children learn to discriminate details of letters to learn likenesses and differences in words as well as to discriminate word forms. Size of type should be such that this can be accomplished without difficulty.

Summary and Conclusions

1. The influence of size of type upon speed of reading in the primary grades was studied. Type sizes employed were 8, 10, 12, 14, 18 and 24 point.
2. Three forms of a speed of reading test were constructed as measuring instruments and printed in the different type sizes.
3. A total of 3,050 pupils were tested for use in the comparisons.
4. In Grade 3B, 10, 12 and 14 point type produced faster reading than either 8, 18 or 24 point type, with a suggestion that 10 and 12 point type are better than 14.
5. In Grades I and II, variation in type size produced no consistent effects upon speed of reading.
6. It is suggested that lack of effect of type size upon reading speed in the early grades is related to the fact that reading habits do not become stabilized until about the fourth grade.
7. It is concluded that speed of reading should not be used as a criterion for choosing a type size for printing books to be used in the primary grades.

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Burnetta F. Blatt Named NSPB Nursing Consultant

Burnetta F. Blatt, R. N., has been appointed Nursing Consultant for the National Society. A graduate of the New York Hospital Training School for Nurses, Mrs. Blatt spent several years in the public health and industrial nursing fields; then returned to New York Hospital to supervise student-staff education in the pediatric out-patient department. In 1947 she was granted a Children's Bureau scholarship to Teacher's College, Columbia University, where she received her degree in nursing education.

Mrs. Blatt recently was associated with the County Health Department of San Diego, California.

New York State Commission Celebrates 40th Anniversary

Miss Alice O. Booth recently assumed the duties of assistant director, and Miss Carmela E. Palermo is directing the prevention of blindness program of the New York State Commission for the Blind. Miss Booth has been with the Commission in a number of key positions since 1931, Miss Palermo since 1947.

On April 30th the New York State Commission for the Blind will celebrate 40 years of service in prevention of blindness work and service to the blind. The original law that created the Commission mandated an intensive prevention program together with the amelioration of the conditions of the blind. Educational directors, teachers, and health and welfare workers throughout the state are familiar with the leadership of the blindness prevention staff, who aim to keep all professional groups working in the field abreast of modern trends in eye care, and to give valuable consultation service on the individual case basis.

Work for the blind has reached an all-time high in New York State where it closely dovetails with that of the many private associations working in this field, to the end that throughout life from the infant to the aged blind there is service available.

We Make Our Own Equipment

DORIS DESOTELL

C. M. Bardwell School, Aurora, Illinois

Materials and equipment used in classes for the partially seeing are expensive. Here are some budget-stretching ideas developed by the pupils and the teacher with some professional assistance from the general shop instructor.

READING stands are very necessary items of equipment in classes for partially seeing children. In our classroom we already had desks with adjustable tops, but the children wanted something they could use when reading in small groups. After a good deal of experimentation we fashioned a stand that has been used very successfully.

For the side supports of this stand the wood of an orange crate was used. A hinged top was made as shown in Fig. 1. If preferred, another type of top, Fig. 2, may be constructed. Our general shop instructor at high school, Ray Burgett, made this of quarter-inch plywood and pine. Not only are these stands easily adjusted to the

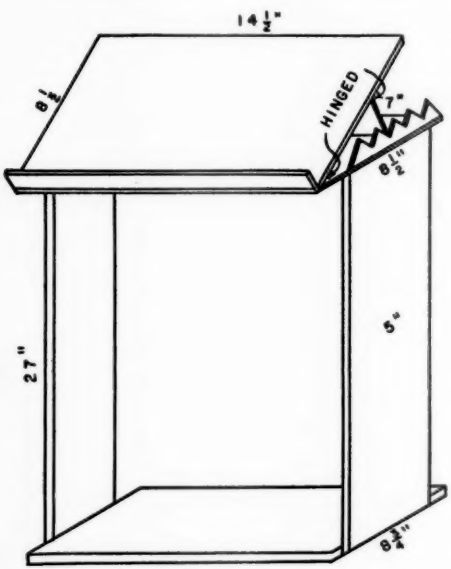


FIGURE 1

Reading stand with hinged top made from orange crate.

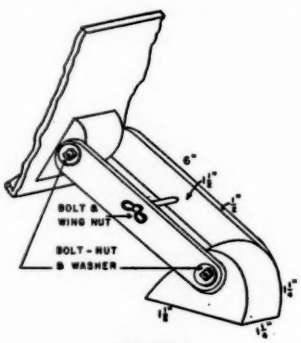


FIGURE 2

Alternate method of constructing top for stand shown in Figure 1.

needs of the individual child, but they can be staggered so as to eliminate shadows.

Our portable dictionary stand of one-inch pine wood, Fig. 3, was made by one of the boys in industrial arts. It can be used on desks or at a table.

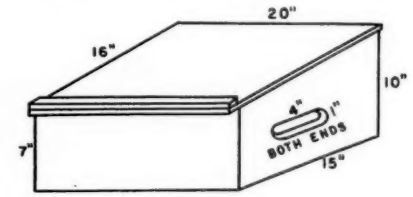


FIGURE 3
Portable stand for dictionary.

We made another stand that we can use either for our ditto machine or the big dictionary, Fig. 4. For this we used two orange crates nailed together with the openings facing in opposite directions. The board nailed onto the top holds the boxes together and forms a table surface, affording a larger working area. The strip down the side makes the stand stronger.

Standards for holding copy when typing, Fig. 5, can be constructed quite simply. For the base we use a piece of heavy iron with a pipe soldered in the center into which a smaller pipe or rod is inserted. A set screw is used to adjust the rod at different heights. A sheet of iron 13¾" x 9" can be bent to hold books or work.

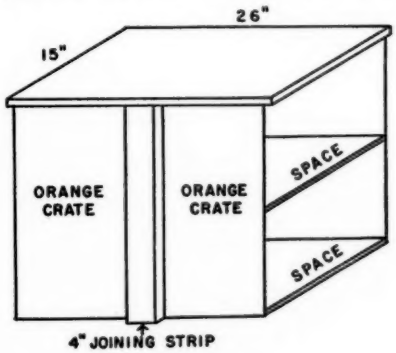


FIGURE 4
Stand made from two orange crates nailed together.

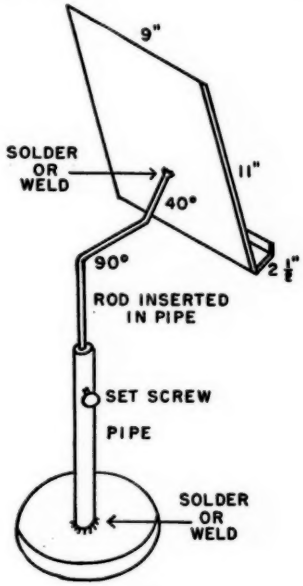


FIGURE 5
Standard for holding copy when typing.

Bookcases can be made from orange crates without any sawing or hammering. With a little sanding and staining or painting they can be finished attractively and arranged in functional units.

Many times we wonder where to keep over-sized paper-covered books, large drawings, or games such as checkers. Again the crate, this time one that has been used for grapes or melons, as shown in the photo.

The counting board illustrated was originally designed to be used with very young children. One of this type gives the small child a chance to work

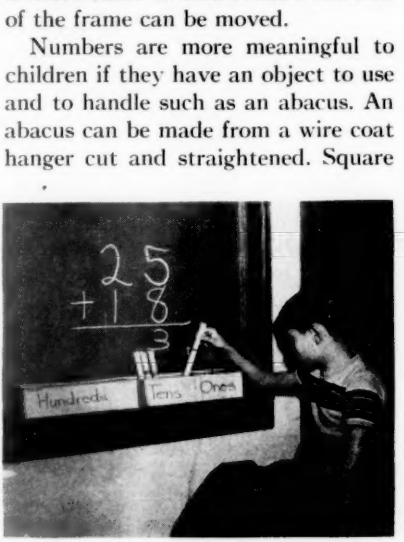
Orange crate used for oversize books or games.

with numbers, either with the help of another child or by himself. This device aids in number recognition, learning numbers in series, what number comes before or after a given number, the number that comes between two given numbers, and counting by two, five and ten. All these and many other number concepts are made meaningful by this method. As the numbers go up to 100, in units of 10, this board can be used by older children also.

Our counting board is made on an easel-type frame. The section containing the blocks measures 26″ x 36″. The width inside the frame is 23″ but the rods on which the blocks are strung must be 23¾″ so they will hold when inserted in the holes that have been drilled in each side of the frame. Starting 6″ from the top 10 brass rods are placed 3″ apart, inserted in the holes drilled in side of frame. Blocks used are 2″ x 2″ x ½″, cut from the ends of orange crates and sanded; but strips of wood 2″ wide and ½″ thick would be easier. Holes are drilled lengthwise through the center of the block so they can be strung 10 on each rod. It is best to fasten the frame with screws, as it is much easier to insert rods if one side of the frame can be moved.

Counting board.

Numbers are more meaningful to children if they have an object to use and to handle such as an abacus. An abacus can be made from a wire coat hanger cut and straightened. Square

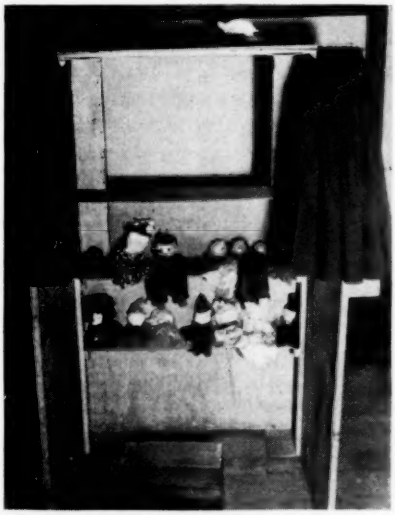


Paint pans used for holding counters.

blocks of wood with holes drilled in center, large wooden beads, acorns with hole drilled in center, or any uniform object can be strung on this wire. Wrap cut ends of hanger with masking tape so that they will not scratch or hurt the child when he uses the abacus. Bend ends of wire in semi-circle. This makes a handle and eliminates any chance of injury from projecting ends. When we are making an abacus to use in learning addition and subtraction we use 20 objects, but the number can be varied according to use. These devices are inexpensive, so one can have as many as needed and a great variety.

When teaching carrying or borrowing in arithmetic we use the paint pan from one of our primary painting easels and three pieces of oak tag 3″ x 5″ as labels. On the first label, with a felt pen or India ink, we print *Ones*, on the second *Tens*, and on the third *Hundreds* (see photo). We attach the cards with masking tape so they can be removed when we want to use the pan again on the easel. Drinking straws or wooden meat skewers with points removed can be used for ones, bundles of tens and bundles of hundreds. Use heavy rubber bands as dividers between the consecutive bundles.

Our puppet show was made from a hand-me-down packing box. This had first been used as a post office in a PTA skit and then stored. (A look around the storerooms often reveals many things that can be used.) Our box is 5′ high, 3′ wide, and 3½′ deep. One of the boys brought an old traverse rod from home to use for drawing the stage curtains. These are made of dark blue second-hand sateen and hung by notebook rings. The back of the box is open, so that the children will have no trouble entering. Dark red cambric curtains, hung on an ordinary brass curtain rod, form the back drop. Some of the boys built three shelves inside the box, using plywood brought from home. The top shelf is the stage floor; the two lower shelves hold the puppets when they are not in use.



Back of packing box with built-in shelves used for puppet show.

Summer Courses

Up to the time of going to press, the National Society has received word from the following colleges and universities that they will offer the complete course as recommended by the Society for teachers and supervisors of the partially seeing, during the coming summer session. Information regarding dates, fees, etc., may be obtained by writing directly to the individuals indicated:

Illinois State Normal University, Normal, Illinois
Dr. Rose E. Parker

Ohio State University, Columbus, Ohio
Dr. Herschel Nisonger

San Francisco State College, San Francisco, California
Dr. Leo Cain

Syracuse University, Syracuse, New York
Dr. William M. Cruickshank

Wayne University, Detroit, Michigan
Dr. John W. Tenny

Convention Issue

The Summer Issue of the SIGHT-SAVING REVIEW will be devoted to an over-all report of the 1953 NSPB Annual Conference, including a number of the papers presented by authorities in the fields of medicine, health, social work and industry.

A Study of Visual Screening and Referrals on 996 Pupils During Their 12-Year School Experience

GERTRUDE E. CROMWELL

Supervisor of Nursing
Denver Public Schools

RECENTLY 996 cumulative health records of pupils graduating from the Denver Public Schools were studied to ascertain, if possible, at what grade levels the greatest number of eye problems were discovered during vision screenings. All 996 children entered the Denver Public Schools in the kindergarten and continued through the 12th grade, graduating in June 1952. Each child had received 10 or more visual screenings given by the school nurses under relatively standard conditions—twenty foot distance with Snellen eye chart electrically lighted. Any child whose visual recording exceeded 20/30 in one or both eyes, or complained of difficulty in seeing, was referred for further study.

Following is a tabulation of the results of the survey (996 children evaluated):

	No.	*Per Cent*
I. Screening Results		
No apparent difficulty at any time	683	68.9
Referred to specialist	248	24.6
Secured glasses when no difficulty was found on Snellen Chart screening	65	6.5
II. Referred to Specialist		
From kindergarten through 6th grade	160	64.
" junior high	65	26.
" senior high	23	9.
III. By grades 248 children with eye problems were discovered for the first time, as follows:		
Preschool (entered school with glasses)	6	
Kindergarten	29	
First grade	26	
Second "	18	
Third "	36	
Fourth "	16	
Fifth "	17	
Sixth "	12	
Junior high (7–9 incl.)	65	
Senior high (10–12 incl.)	23	
IV. Unsuccessful attempts to secure corrections on the 248 pupils with suspicious findings:		
No correction ever noted on health cards from all grade levels		17.
No correction noted among the 160 referrals found in kindergarten through grade six		14.
No correction noted among the 65 junior high children		27.
No correction noted among the 23 senior high children		66.

Of the glasses secured by the 65 children who had not shown eye problems on the screening test at school, 31 were girls from higher economic bracket. Among all schools the majority of glasses were secured by students in senior high. It is to be *assumed* that many of these evidenced eye symptoms and were given special ophthalmic examinations upon complaints of visual disturbance.

As a result of this survey, the writer would like to recommend:

1. That several other school systems keeping cumulative health records make similar studies and report their findings in some similar way so that we may begin to make the wisest selection of pupils for routine testing. Another study will be made from the records of the 1953 graduating classes in Denver.
2. That from this preliminary analysis it seems quite possible that through very careful screening and observation the majority of children with significant visual problems would be found by routine screening of kindergarten, grades 1, 3 and 8. Children who have been referred in previous years should be re-screened annually as well as all new entrants to the school.
3. That as a supplement to a reduced screening program more time be given to careful observation of the children by teachers and nurses. That children who seem to have visual difficulty or who complain of symptoms which might be related to the eyes be referred for a full examination by an ophthalmologist.
4. That a better system of follow-up and reporting of correction is needed as is indicated by the percentage of pupils who apparently did not get to the ophthalmologist or, if they did, the school received no report from the physician.

GIVE THEM THE GIFT OF GOOD SIGHT

"To an amazing degree, the kind of person your child is depends on his type of eyesight," says Louise Fox Connell in an article published under the above title in the November 1952 issue of *Parents' Magazine*. "Bill, whose nearsightedness makes him a dub at sports," says Mrs. Connell, "turns him into a bookworm. Farsighted Phyllis finds sewing, reading, even playing with paper dolls hard but shines at baseball and becomes a tomboy."

It takes between 16 and 21 years for eyes to acquire full maturity. At birth an infant can see light. Soon he learns to hold his eyes steady long enough to stare at something, but they do not work as a team for at least three months. Six months are required for the part of the eye which gives the sharpest sight to work efficiently.

Infants often appear cross-eyed. This is no cause for worry during the first three months. After that and particularly after six months, an eye doctor should be consulted. Early treatment of crossed eyes usually saves the sight of the wandering eye.

One out of every four school children is found to need special eye care; many need glasses. A child may get glasses with frames reinforced with wire and safety lenses. Prescription glasses can be tinted to prevent glare, but colored glasses ought not to be worn except when there is unusual glare. Contact lenses, useful in some cases, should not be considered unless prescribed by an eye specialist.

Every year 85,000 children suffer eye injuries. Young children should be forbidden explosives, sharp scissors, knives, darts, air guns, sling shots and bows and arrows. Older children should be trained to use these things safely.

Careers of Partially Seeing High School Students

DIANA WOLMAN

Thomas Jefferson High School, Brooklyn, N. Y.

ALL who have any concern for partially seeing students of high school age will be interested in a recent study of those who have graduated from Thomas Jefferson High School in Brooklyn, New York, during the past 10 years. To learn what these graduates have accomplished vocationally, what further education they completed, what personal adjustments they were able to make, a questionnaire, devised by Diana Wolman, sight conservation teacher at the high school, was sent to 40 former students of the school. Eighteen of these supplied complete answers to the questions.

Nine (one-half of all who replied) have continued their education and have studied or are studying physics, law, advertising, commerce, social work and education. The others are gainfully employed as follows: typist, bookkeeper, receiving clerk, wire and shipping clerk, salesgirl, cutter of microscope cover glass, Civil Service employee with the New York State Division of Unemployed Insurance. Mrs. Wolman's study proves once more the undesirability of a limiting "job list" and stresses the importance of a positive approach that emphasizes the abilities and interests of the individual.

The results also underscore the necessity of early and intensive vocational guidance for partially seeing students and of personality building in the broadest sense. As Mrs. Wolman says, "It is not strange that personality development and vocational guidance should have been cited together by our graduates. The topics are truly related, for meaningful vocational guidance starts with the complete human being. Because the complete personality of the individual is so important in vocational happiness and success, guidance for the partially seeing student cannot be an automatic application of jobs that people with poor vision have succeeded in performing in the past. The list of activities engaged in by our graduates is additional proof that proper mental attitudes, good work habits and a pleasing personality are more important than specific job training for adolescents."

In addition, all the graduates stressed the importance of being the same as everyone else, of being a part of all normal social groups. Even minor degrees of segregation left a deep impression on the students. Years after graduation, many of them mentioned the "special health class," although a question about this did not appear on the questionnaire. All students expressed the sentiment that they, in the words of one of them, "do not believe it is necessary to partially segregate those with poor vision. From the point of view of the emotional development of the student, it is dangerous to give him to believe that he is different from others."

Next Year's NSPB Conference
March 10–12, 1954
Hotel Jefferson, St. Louis, Mo.

NOTES AND COMMENT

• Smallpox Vaccination

Because smallpox often leaves blinding scars on the cornea, prevention of blindness workers in the United States will be particularly interested in a recent court decision in Missouri.

Since 1919 the University City (Missouri) Board of Education has required smallpox vaccination for admission to school. Court action to test the validity of the regulation was started in January 1952 by the parents of twin daughters. The case came to trial in the circuit court of the County of St. Louis in April 1952.

It was conclusively shown that there was not, at that time, an epidemic of smallpox or immediate threat of such an epidemic in St. Louis. However, Judge John A. Witthaus ruled:

"In the trial of this case the court had the benefit of the opinions of a number of outstanding specialists in the field of public health and the control of communicable diseases. It was their testimony, without exception, that while there is no known cure for smallpox, the remarkable reduction in the cases of that dread disease is attributable to the present general acceptance and the proven preventive effectiveness of vaccination, and that any relaxation of rules requiring such vaccination would to the extent of such relaxation increase the danger of the introduction of the disease into the schools.

"The doctor in charge of the Bureau of Communicable Diseases of the Missouri Department of Health testified that in 1937 there were 1,751 reported cases of smallpox in our state. From that year the number of reported cases dropped markedly and in the past 9 years the highest number of reported cases for any year was 11. Indeed he testified that in 1950 and 1951 only two cases were reported for each year.

"In the light of testimony so overwhelming and statistical information so convincing of the protective value of vaccination against this once prevalent disease, the court must hold that the respondents are wholly within the exercise of a sound discretion in adhering to their rule requiring vaccination of children in their school system."

• Research on Animals and Man

In an address to the First International Congress on the Histopathology of the Nervous System, September 14, 1952, His Holiness Pope Pius XII approved of animal experimentation, according to a report of the National Society for Medical Research in Chicago. The report contained the following paragraph from the address:

"In the domain of your science it is an obvious law that the application of new methods to living men must be preceded by research on cadavers or the model of study and experimentation on animals. Sometimes, however, this procedure is found to be impossible, insufficient or not feasible from a practical point of view. In this case, medical research will try to work on its immediate object, the living man, in the interests of science, in the interests of the patient and in the interests of the community. Such a procedure is not to be rejected without further con-

sideration. But you must stop at the limits laid down by the moral principles we have explained."

• Detroit's POB Activities

The Detroit Society for the Prevention of Blindness has issued its sixth annual report outlining the progress made in 1952 toward its ultimate goal, the elimination of all preventable blindness in Metropolitan Detroit.

Eye health education of the public in 1952 consisted in part of 19 talks to community groups with a total attendance of 1,057 persons. Two exhibits on conservation of vision were shown and seven articles on prevention of blindness were published.

During this year the Detroit Society functioned as an educational division of the Detroit League for the Handicapped. In cooperation with the League's director of services, the Society prepared a case history form for use by Lions Clubs which will facilitate direct client service from the League's social service department. An outline of activities of Michigan agencies in the prevention of blindness, for use by the newly formed Michigan Committee for the Prevention of Blindness, was also prepared. Conferences were held with groups interested in preventing eye accidents from BB guns and other firearms.

The Society functioned well under its committee program in 1952 (Glaucoma Case Finding, School Children, Small Industrial Plants, Home Accidents, Publicity and General Diseases Relating to Blindness) and plans to continue in 1953 in the same manner.

Through this program the Society hopes to complete present activities and expand its prevention of blindness work.

WALTER G. KING

Walter G. King, for many years safety products director of the American Optical Company, and a former president of the National Safety Council, died in Chautauqua, New York on January 14 at the age of 92.

Early in his career Mr. King became aware of the need for improved eye protective devices for industrial workers. He helped to develop many types of safety and welding goggles now considered essential in hazardous operations. The application of protective devices through the medium of safety engineering was his particular concern.

Mr. King will be long remembered as one who worked tirelessly in the interest of eyesight conservation, and who inspired everyone who was associated with him in this field.

A. JESSIE MAYS

With deep regret the National Society reports the death on January 20, 1953 of Miss A. Jessie Mays, who won professional esteem and personal affection as a teacher of the partially seeing in St. Louis, Missouri.

One of the pioneers in this field of special education, Miss Mays was constantly on the alert for new trends and developments in order that her pupils might have the benefit of up-to-date thinking and practices, and she was notably successful in gaining their cooperation through her sympathetic understanding of their needs and problems.

In December, 1948 Miss Mays was elected an honorary life member of the National Society in recognition of her devotion to sight conservation.

AROUND THE WORLD

EGYPT

Ophthalmological Society Proceedings—Prevention of acute ophthalmias and the status of trachoma are among the subjects discussed in the proceedings of the Ophthalmological Society of Egypt during its 46th session and summer meeting in 1949, published in Cairo in 1951.

Drs. F. Maxwell Lyons and C. R. Amies report no appreciable decline of acute ophthalmia in Egypt despite the widespread use over a number of years of chemotherapy in its treatment. Complications and sequelae of acute ophthalmia are the cause of about 80 per cent of the blindness in Egypt. Each year, in the course of two major epidemics, more than 100,000 new cases are seen at government ophthalmic hospitals. Many times this number goes without treatment. The majority of those affected are children under the age of six years.

The regular seasonal rise in the incidence of ophthalmia is explained by the reservoir of carriers of Koch-Weeks bacillus and gonococcus in each community; the presence of climatic temperature and humidity favorable to these organisms; and the sharp rise in the number of flies during the regular breeding seasons. The common fly is probably the principal agent in spreading the infection from eye to eye. Drs. Lyons and Amies believe the most promising means of preventing or limiting the seasonal epidemics appear to be mass treatment of the child carrier population at the beginning of the epidemic season and extermination of flies.

Dr. Sabri Kamel reports that the general incidence of trachoma in Egypt is the same, though the age incidence is somewhat retarded. The severity of the disease and its complications have greatly diminished. Diminution in the severity of the disease is attributed to improvement of health standards of the population and some reduction of the conjunctival secondary infections.

GREAT BRITAIN

Corneal Grafting—This session Parliament passed the Corneal Grafting Act, 1952, which received the royal assent in June and came into operation on September 26, it was reported in the *Journal of the American Medical Association*, November 29, 1952. This act makes it possible to use the eyes of persons for corneal grafting after their death. It provides that "if any person, either in writing at any time or orally in the presence of two or more witnesses during his last illness, has expressed a request that his eyes be used for therapeutic purposes after his death, the party lawfully in possession of his body after his death may, unless he has reason to believe that the request was subsequently withdrawn, authorize the removal of the eyes from the body for use for those purposes."

In the case of a patient dying in a hospital, "the party lawfully in possession" of the body of the deceased is the hospital management committee or the board of governors, and they are further strengthened by the following clause in the act: "Without prejudice to the foregoing subsection, the party lawfully in possession of the body of a deceased person may authorize the removal of the eyes from the body for the purpose aforesaid unless the party has reason to believe: (a) that the deceased has expressed an objection to his eyes being so dealt with after his death, and had not withdrawn it; or (b) that the surviving spouse or any surviving relative of the deceased objects to the deceased's eyes being so dealt with."

As the number of hospitals at which corneal grafting is done is limited at the moment, the Ministry of Health suggests that the most convenient way of supplying them with eyes is to organize around each such hospital a group of other hospitals that could send them eyes as required.

Ophthalmologist Appointed to IES—For the second time in its 43-year history the Illuminating Engineering Society has elected an ophthalmologist as its president, it was announced in *The Optician*, October 17, 1952. Dr. W. J. Wellwood Ferguson has been inducted into that office for the 1952–1953 session.

Dr. Ferguson is senior ophthalmic surgeon at the Royal Infirmary, Sheffield, and lecturer in ophthalmology at Sheffield University. He is on the Light and Vision Committee of the Medical Research Council and is the only ophthalmologist who takes an active part in the proceedings of the International Commission on Illumination.

Levy on Prescriptions—As a result of regulations imposing a levy per prescription form issued under the National Health Service and payable by the patient, there appears to be a decrease in the national expenditure for ophthalmic appliances. Over a period of a year, according to the annual report of the executive council of the city of Sheffield, England, the number of sight tests carried out fell from 57,401 to 39,768, a reduction of 31 per cent.

Blindness Report—There were 9,119 blind people in Scotland on March 31, 1952, an increase of 226 over the year before, it was reported in *The Lancet*, October 4, 1952. In an analysis of this figure the Department of Health in Scotland says that, though the number of blind children has been falling for many years, it has now shown a slight increase. Twenty children under the age of five were newly registered as blind in the year up to March 31—about double the average for recent years. An increase in the number of cases of retrolental fibroplasia was partly responsible.

INDIA

Vision in Industry—The importance of job analysis and job placement for the proper assessment of vision in industry is stressed by Y. K. C. Pandit, M.D., ophthalmic surgeon in Bombay, in his recent article in *Proceedings of the Society for the Study of Industrial Medicine*. In a factory in India, writes Dr. Pandit, the vision of every employee who had sustained an injury, however trivial, was carefully tested. Among 934 persons injured, 92 had

substandard vision, or 9.85 per cent.

One of the greatest difficulties in India's factories as far as the assessment of vision is concerned is the lack of pre-employment data. Before an employee is placed on the job his eyes should be examined by a skilled technician. Component parts of a given job should be related directly to the visual skill involved in performance of the job. Then the employee can be placed on the job according to the correlation of his vision and the requirements of the job.

IRAN

Letter from Tehran—NSPB recently received the following letter from Mrs. J. Hall Paxton, public health nurse in Tehran:

"Isfahan rural school health has been the dream of our office since I started to work in July at Point IV after the death of my husband, the American Consul in Isfahan the month before. There have been many obstacles and discouragements such as rioting and demonstrations against Americans; religious periods of mourning when Americans could not be permitted travel in the rural areas; dusty, hot, almost impassable roads and now cold, unheated schools to work in; waiting until last month to find a graduate nurse who would be willing to accompany me on these trips and speak the language for me and now the final granting of the application on our school physician, Persian, that had been tied up for two months with little prospects of breaking the deadlock.

"Yesterday, the young doctor wrote me his 'ideals' and I had it translated into English. He said, 'I am doing this work in the villages because I want to help the children of my country.' The nurse and I had assembled the material in a leather bag that we will use for physical examinations for these children and we showed it to him complete with our newly arrived illiterate eye chart. His eyes shone and we all felt like pioneers to be the first group to attempt rural school health work in Iran. Today, Friday, is the Moslem sabbath. We expect to launch our work in earnest tomorrow. Thank you very much for your prompt assistance in helping us complete our equipment."

NORWAY

Causes of Blindness—A total of 3,181 cases of blindness formed the basis of a study made by J. C. Holst, M.D., of Oslo, Norway, which was recently published in the *American Journal of Ophthalmology*. Dr. Holst classified the causes of blindness in two groups, hereditary and nonhereditary. His figures fell in practically equal numbers between these two groups, with 1,585 cases of hereditary blindness and 1,596 cases of nonhereditary blindness.

Retinitis pigmentosa, a hereditary cause of blindness, is one of the most common causes of blindness in Norway, said Dr. Holst. His cases included a man suffering from retinitis pigmentosa who was the father of eight children, six of whom developed the disease. One of the afflicted daughters gave birth to five children, the eldest of whom also contracted the disease. Dr. Holst studied a total of 263 persons afflicted by this disease.

Other cases of blindness of hereditary origin included 53 patients with infantile glaucoma; 145 with glaucoma simplex; 114 with atrophy of the optic nerve; 77 with atrophy of the retina

and choroid; 304 with congenital cataracts; 94 with excessive myopia; and 140 with amotio retinae.

In the group of persons blinded by nonhereditary eye diseases, there were 60 whose blindness resulted from blennorrhea neonatorum; 70 from keratitis parenchymatosa; 880 from miscellaneous diseases (sclerokeratitis, iridocyclitis and uveitis, as well as retinitis and optic nerve atrophy); and 406 from injuries.

TURKEY

Terramycin in Trachoma—In *Eye Clinic*, an Istanbul periodical, Dr. Izzet Bilger has published his observations on the effectiveness of terramycin on trachoma on 700 patients in the Adana Trachoma Hospital and Dispensary. Terramycin hydrochloride was administered per os, 250 mg. in capsules, 0.1 per cent and 0.5 per cent ointment, and 0.5 per cent solution of eyewash. Of 38 patients with acute trachoma 27 patients recovered after three to six weeks and 11 patients after five to 10 days. Twenty-seven patients who were given terramycin orally, ointment, and eyewash recovered after 20 days, but slight gastrointestinal irritation developed. Patients with chronic trachoma needed from two to three months therapy for complete recovery, and to prevent a relapse the therapy was continued for another month. A combination of chemotherapy and surgical intervention in chronic and complicated cases accelerated recovery.

From a special school for children with trachoma, 640 children who had chronic trachoma were selected and divided into three groups. The patients in group one were given terramycin only, in group two terramycin and chemotherapy, and in group three terramycin, chemotherapy and surgical treatment. In almost all patients bleeding and suppuration decreased in from one to two weeks, and after from two to six weeks 20 per cent of the patients had recovered. After 12 weeks 80 per cent recovered, but therapy was continued for another month after recovery.

WEST AFRICA

Causes of Blindness Survey—A three-year survey into the causes of blindness in West Africa was planned to begin in October, 1952 when two research workers were scheduled to leave the United Kingdom for the Northern Gold Coast and Nigeria, according to a report in *The Optician*. In the areas to be surveyed, says the report, one in seven of the population suffers from eye disease and one in 70 is blind. Among the endemic diseases are trachoma, ocular leprosy, blindness due to nutritional diseases and onchocerciasis, a disease carried by the simulium fly which blinds thousands of people each breeding season.

Leading the research teams is Dr. Frederick Rodger, an ophthalmic surgeon with considerable experience as a senior medical officer with the Commandos in Egypt, India, Ceylon, and in jungle operations in Burma. Accompanying him is Dr. Geoffrey Crisp, an entomologist who has just completed an important research project at Leeds University connected with the life history of the flies that cause blindness.

The expedition is equipped with everything necessary for carrying out eye operations. It is being organized and financed by the British Empire Society for the Blind.

CURRENT ARTICLES

Cortisone and A.C.T.H. in Exophthalmic Ophthalmoplegia. G. N. Chandler and S. J. Hartfall. *The Lancet.* Vol. CCLXII. pp. 847–850. April 26, 1952.

Five patients were studied in an effort to assess the effect of cortisone and ACTH in exophthalmic ophthalmoplegia. Some improvement in the ocular condition took place in four patients. Thyrotoxicosis was controlled in the two patients where this coexisted with exophthalmos and ophthalmoplegia. The mechanism of improvement or partial success was far from clear. Results in relation to sodium balance were inconclusive.

Recent Developments in Ocular Therapeutics. N. G. Douvas. *The Journal of the Iowa State Medical Society.* Vol. XLII. p. 54–58. February 1952.

The author states that the most significant advances in ocular therapy have resulted from the use of endocrine products and chemotherapeutic agents. ACTH and cortisone have been shown to be effective as broad spectrum ocular therapeutic agents. The author's results and those of his colleagues at the State University of Iowa are in general agreement with the less enthusiastic reports that have appeared. He points out, however, that many of the cases have taken on features of chronicity by the time they see them and that in these cases the results are not so dramatic as they would like to see. Moreover, they have treated a number of cases of iridocyclitis topically with cortisone drops in which the eye became relatively white shortly after treatment was started. This whiteness was misleading in that slit lamp examination revealed a heavy aqueous flare and a "frozen" chamber that persisted for a few days.

Treatment of Chemical Burns of the Eye with Corvasymton. J. W. Wagenaar. *British Journal of Ophthalmology.* Vol. XXXVI. pp. 202–206. April 1952.

The author reports a case of severe corrosion of both eyes by unslaked lime, treated with Corvasymton (oxyphenyl-methylamino-ethanol tartrate solution). The visual acuity, at first limited to the perception of light in the right eye and to 2-3/300 in the left eye, could be improved by contact lenses to 5/6.6 and 5/10 after six weeks of treatment, and to 5/10 by ordinary spectacles after three months.

Toxoplasma Chorioretinitis in Adults, A Preliminary Study of Forty-One Cases Diagnosed by Microscopic Examination. H. C. Wilder. *A. M. A. Archives of Ophthalmology.* Vol. 47. p. 425. April 1952.

Organisms having the morphologic characteristics of *Toxoplasma*, some appearing in pseudocysts, have been identified in chorioretinal lesions in 41 eyes removed from patients between

the ages of 16 and 72 years. The lesions were unilateral, although in one instance scars of old choroiditis had been observed clinically in the opposite eye. As far as could be determined, 34 patients were free from symptoms of disease apart from the eye; however, 9 gave a history of direct injury which had preceded the onset of ocular symptoms at varying intervals. In six instances these injuries were nonpenetrating. The duration of ocular symptoms varied from 1 month to 32 years.

The lesions were strikingly uniform, and their granulomatous character, together with marked necrosis, had in many instances led to a pathologic diagnosis of tuberculosis or possible tuberculosis. Pseudocysts and organisms were recognized in paraffin sections, but the characteristic cresentic forms of the protozoa were most clearly demonstrated by oil-immersion examination of celloidin sections stained with hematoxylin and eosin.

Effectiveness of Terramycin and Other Antibiotics Against Experimental Bacterial Keratitis. E. J. Cannon and I. H. Leopold. *A. M. A. Archives of Ophthalmology*. Vol. 47. pp. 426–436. April 1952.

This study was undertaken to evaluate the new antibiotic terramycin. This was done by simultaneous comparison with other agents (neomycin, chloramphenicol, aureomycin and streptomycin) against standard pure-culture corneal infections of the rabbit eye.

Terramycin topically applied controlled experimental keratitis due to a variety of Gram-positive, penicillin-resistant and Gram-negative organisms. Topical use of neomycin was also of benefit in experimental bacterial keratitis, but was not so completely successful as terramycin. *In vitro* studies of bacterial sensitivity to antibiotics were not always confirmed by *in vivo* trial.

The importance of early treatment of experimental ulcers with an optimal concentration of the antibiotic is demonstrated by the action of various concentrations of terramycin employed at different time intervals following the intracorneal injection of *Ps. aeruginosa*.

Teaspoon Penetrating Child's Orbit. T. Le Win. *A. M. A. Archives of Ophthalmology*. Vol. 47. p. 515. April 1952.

The author saw a baby 19 months old who had been brought to the Children's Hospital in Buffalo with the handle of a common teaspoon penetrating the right orbit a distance of 5.6 cm. (2½ in.) from the inner lower orbital rim. The child had fallen from the top of a high chair to the floor while holding the spoon tightly in her right hand. It penetrated the inner lower right eyelid, forced the globe upward and lateralward, and continued in along the nasal wall.

Examination was made with the child under general anesthesia. Very slight nasal bleeding was noted. The spoon, tightly wedged in, was carefully withdrawn and the orbital tissue replaced. Atropine ointment and aureomycin ointment were applied, with the eye closed by an ordinary pad. A preparation of crystalline procaine penicillin G in oil, 400,000 units, was prescribed and the child was admitted to the hospital. Neurologic and roentgenologic studies revealed no abnormality. The fundus remained normal, as did the optic disk. The child was hospitalized 10 days, during which the

temperature was not elevated. Penicillin was discontinued after five days. At discharge there appeared to be no interference with the normal ocular movements, no intraocular complications and no interference with the lacrimal drainage.

This case emphasizes the value of antibiotics in the management of such injuries.

Retrolental Fibroplasia: Animal Studies—Induced Vascular Engorgement and Hyperplasia of the Iris, Tunica Vasculosa Lentis and Retina in Kittens. W. R. Hepner, Jr. *Pediatrics*. Vol. 9. pp. 602–606. May 1952.

The author reports an attempt to produce retrolental fibroplasia in kittens. A condition similar to the early retinal stages of retrolental fibroplasia, along with persistence of the ocular embryonic vascular system, was induced by repeated massive blood transfusions in chronically edematous kittens.

In his discussion the author says that filling the extracellular fluid spaces to the point of edema and then repeatedly administering massive blood transfusions maintains the embryonic vascular supply of the lens. The hyaloid system and the budding iridal vessels are dilated and engorged with blood. The tunica vasculosa lentis remains intact in its entirety to the 43rd day of life, if edema is maintained and massive blood transfusions are repeatedly given. Neither the edema alone, nor transfusion alone could, in the author's hands, maintain these structures.

At histologic examination the test kittens have capillary angioma-like structures with mild surrounding inflammatory cell infiltrations in the periphery of the retina. However, these vessels are not seen to enter the vitreous. The retina in the regions of the angioma-like networks bulges toward the vitreous, but no point of break through the internal limiting membrane of the retina could be identified. Engorgement of the retinal vessels is more easily seen in the live animal than in the histologic studies, although it is easily identified in the latter.

Although great similarity of histopathology exists between these animal studies and some human studies, the author felt that final conclusions about the similarity of etiology cannot be drawn.

Ophthalmoscopic Evaluation of the Hypertensive Patient. F. M. Wilson. *The Journal of the Kansas Medical Society*. Vol. LIII. pp. 225–229. May 1952.

In his discussion of optic fundus changes of vascular hypertension and methods of evaluating these changes, the author says that retinopathy and papilledema imply a serious prognosis and that, therefore, it is of considerable importance that the ophthalmoscopist be acquainted with the conditions with which they may be confused. Some of these conditions are: (1) the retinopathy of diabetes, particularly when associated with hypertension; (2) the fundus pictures of tributary or central venous thrombosis, chorioretinitis, retinitis pigmentosa (especially when the pigmentary disturbances are minimal or confined to the periphery); (3) the fundus lesions associated with severe anemia and leukemia; (4) optic neuritis; (5) the papilledema associated with acute toxemias or with increased intracranial

pressure due to brain tumor; and (6) conditions simulating papilledema, such as congenital pseudoneuritis and medullated nerve fibers.

Moderate amounts of retinal vascular sclerosis often occur as a part of the normal aging process. Otherwise this sclerosis may be taken as an indication of the chronicity of the hypertensive process. Similar findings in the choroidal vessels are often associated with these changes, and pigmentary disturbances overlying the choroidal vessels, usually in the periphery of the fundus, are also manifestations of hypertension of long standing. Attenuation and spasm of the retinal arterioles usually indicate varying degrees of progressive hypertensive disease. Development of neuroretinopathy often means increased intracranial pressure and indicates a terminal stage of disease.

Influence of the Sympathetic Nervous System on the Intra-Ocular Pressure and Vascular Circulation of the Eye. D. P. Greaves and E. S. Perkins. *British Journal of Ophthalmology*. Vol. XXXVI. pp. 258–264. May 1952.

In summary, the authors state: (1) section of the cervical sympathetic nerve had little effect on the intraocular pressure in the cat; (2) stimulation of the cervical sympathetic nerve in the cat caused an initial rise followed by a fall in intraocular pressure. The initial rise is probably due to contraction of smooth muscle in the orbit; (3) stimulation of the cervical sympathetic nerve caused an apparent increase in the drainage of aqueous fluid into the aqueous veins of the rabbit; and (4) stimulation produced some contraction of the choriocapillaris but no marked changes in the larger choroidal vessels. The vessels were observed *in vivo* by dehydrating the sclera of albino rabbits. A similar indeterminate result followed the intravenous injection of adrenaline.

The Aqueous Humor Problem. J. E. Harris. *Eye Digest.* Watson Gailey Eye Foundation. Vol. 1. pp. 17–22. May 1952.

In explaining the raised ocular tension of glaucoma, the author points out that attention has been focused on two major etiologic possibilities: (1) increased rate of formation of aqueous and (2) decreased rate of drainage from the anterior chamber. In summary, he says that the aqueous is hyperosmotic with respect to plasma by virtue of the active transfer of certain ions. The hydrostatic potential of this hypertonicity is considerably greater than the measureable intraocular pressure. It is assumed, but not proved, that the total osmotic pressure is not exerted because the aqueous flow through the eye is too rapid to permit equilibration with water.

Directions for Cleaning and Disinfecting Tonometers. The Committee on Standardization of Tonometers. J. S. Friedenwald, chairman. *Transactions*, American Academy of Ophthalmology and Otolaryngology. Vol. 56. pp. 476–477. May–June 1952.

To disinfect a tonometer, it is advisable to keep the end that comes in contact with the eye in a solution of 1:5000 zephiran during the period of the day in which the tonometer is in use. An organic mercurial disinfectant may be used instead. Suitable stands are now available for this purpose. Dr. Albert D. Ruedemann was the first to

devise such a stand and place it on the market. The instrument should not be left in the disinfectant overnight as corrosion of the metal may occur. Since the disinfectant may be slightly irritating to the eye, the footplate and lower end of the plunger should be washed with distilled water and wiped dry with a gauze or cellocotton sponge immediately before use.

To clean a tonometer at the end of a day's use, the plunger should be removed from the cylinder after taking off the 5.5 gram weight. Wipe the plunger clean with a gauze sponge moistened with 70 to 95 per cent alcohol. Irrigate the plunger casing of the cylinder thoroughly with distilled water. It is preferable to have this warm in order to dissolve rapidly any crystals of salt formed from tear fluid. Then the casing should be irrigated with 70 to 95 per cent alcohol and the tonometer allowed to dry. The tonometer and the plunger should then be kept in the closed carrying case until the next day's use.

What a Visual Program Means to Employee, Management and the Community. L. H. Whitney. *Transactions*, American Academy of Ophthalmology and Otolaryngology. Vol. 56. pp. 525–530. May–June 1952.

The author points out that vision is related to all three aspects of industrial health programs, which are preplacement examinations, periodic health examinations and accident prevention.

Regarding the first of these, the author believes that although the Snellen test of distance vision has proved useful for medical-legal purposes and gives fairly accurate information about visual acuity at distance, it falls short of the goal for at least two reasons: (1) it provides data on a single visual function only, and (2) it is usually applied to a visual standard for the proposed job that is arrived at arbitrarily. Analysis of visual skills can be obtained quickly and easily by a visual performance testing instrument and this information can be matched against *objectively* determined visual requirements of the job.

Periodic appraisal of the visual performance is an important part of the periodic health examination in that it identifies changes in vision which occur gradually with advancing age.

Employees engaged in any type of work which exposes them to eye hazards require eye protection. Properly prescribed and fitted safety glasses will almost entirely eliminate eye accidents.

Proper consideration of these three phases of industrial health will benefit the employee, the management and the community.

Review of the Results of Cortisone and ACTH Therapy in Diseases of the Eye. C. Berens and Major J. H. Bickerton, (MC), U.S.A.F. *Quarterly Review of Ophthalmology*. Vol. 8. pp. 77–86. June 1952.

The authors studied 1,162 cases of a wide variety of ocular diseases treated with ACTH and cortisone and arrived at the following conclusions:

1. Rapid and consistent responses occur in certain acute inflammatory processes of the eye by controlling the inflammatory and exudative phase of the disease. These hormones do not cure the cause of a disease, and proper specific therapy should be instituted when indicated.

2. Questionable beneficial and variable therapeutic results are produced by ACTH and cortisone in most chronic ocular diseases, and no favorable response has been reported in degenerative diseases of the eye.
3. Acute self-limited eye disorders usually respond well to the systemic administration of ACTH and cortisone.
4. Topical administration of cortisone is preferred in inflammations of the anterior ocular segment.
5. The subconjunctival administration of cortisone seems to be effective in some inflammations of the posterior segment of the eyeball, especially in the acute and subacute lesions.
6. Benefit from ACTH and cortisone therapy seems to be particularly marked in conditions where allergy may be a factor in the development of eye lesions.

Congenital Toxoplasmosis Occurring in Identical Twins. Lt. (jg) W. F. Murphy (MC), U.S.N.R. and Capt. J. L. Flannery (MC), U.S.N. *A. M. A. American Journal of Diseases of Children.* Vol. 84. pp. 223–226. August 1952.

Two cases of congenital toxoplasmosis occurring in identical twins are presented. Clinical evidence of the disease was manifested by convulsive disorders and visual disturbances—esotropia and nystagmus. Funduscopic examination revealed extensive choroidoretinitis in both cases. Serological evidence of the disease was proved by positive complement fixation and high-dilution titers in the dye test in each of the twins and in the mother. In neither case has there been any evidence of intracerebral deposits of calcium. Two younger siblings have shown no clinical or serological evidence of toxoplasmosis.

Research at the Moorfields-Westminster-Central Eye Hospital and the Institute of Ophthalmology, London. A. J. B. Goldsmith. *Quarterly Review of Ophthalmology.* Vol. 8. pp. 87–89. June 1952.

Shortly after the war the project of an Institute of Ophthalmology was accomplished through the amalgamation of three of the London Eye Hospitals. The clinical work previously done in the three branches was confined to two hospitals which, with 342 beds, serving between them about 115,000 new patients and performing some 7,000 major eye operations annually, have a wealth of clinical material for research and teaching. The third branch, now the Institute, houses the laboratories and clinical and scientific research workers.

One of the earliest research activities led to the establishment of a glaucoma clinic in which a large number of patients are kept under long-term observation with the usual and repeated examinations of tension, visual fields, gonioscopy, etc., with careful inquiries into personal, social and economic backgrounds. The phasic diurnal variations of pressure in normal and glaucomatous subjects are observed and compared, and the causes of these variations are being sought in possible variations of capillary-venous pressure impeding drainage from the canal of Schlemm. The underlying neurogenic control is being studied systematically, in man in so far as it can be done without risk, and in experimental animals by means of

destruction and stimulation of various possible neural pathways, and by the use of drugs having selective actions on the various components of the autonomic nervous system and on the ocular muscles. In conjunction with the department of pathology the precise anatomic and anastomotic distribution and connections of the vessels supplying the inner eye, the canal of Schlemm and of the important episcleral vessel plexus are being established in normal and glaucomatous eyes by a recently developed injection technique. In the course of these investigations new instruments have been and are being devised: an accurate tonometer, working on optical principles, which is so sensitive that variations resulting from pulse beats and respiration are recorded, and a manometric apparatus which registers simultaneously the blood pressure and the tension of both eyes.

Another research unit is concerned with antibiotics, testing each as it becomes available. In the field of cortisone extensive trials are being made to establish its value and limitations in ocular disease.

Smaller research units are working on iridocyclitis, orthoptics and the investigation of myopia in children by the use of x-ray techniques to measure the axial length and diameters of the living eye. Another department is concerned with the fitting of contact lenses; others with corneal grafts and the surgery of retinal separation. As for cataracts, mention is made of the recently devised operation wherein a plastic lens is implanted within the human eye.

The pathology department is engaged in a study of the vascular malformations resulting from disease and of the mode of formation of new vessels. It is also concerned with retrolental fibroplasia, undertaking the pathological work involved in the countrywide investigation into this disease being carried out by the Medical Research Council of Great Britain, and with toxoplasmosis, virus diseases and the testing of the antigenic properties of various ocular tissues.

In the basic physiology of the eye, studies are being made of the blood-aqueous barrier and of the problems implicit in the transfer of salts and other substances across it. The pharmacology of the intrinsic and extrinsic neuromuscular mechanisms of the eye is also being investigated, as is the metabolism of the cornea, lens and sclera. Use is being made of radioactive tracer substances in the assessment of corneal and other permeabilities, while neutron and x-ray cataracts are being induced and compared.

In the field of physiology of vision, investigations are being made into the minute anatomy of the retina and the electro-physiology of the retina and optic nerve. Two new photosensitive substances have been isolated in work on the biochemistry of visual pigments.

The Medical Examination of Hiroshima Patients with Radiation Cataracts. P. G. Fillmore. *Science.* Vol. 116. pp. 322–323. September 26, 1952.

A group of 78 Hiroshima patients with radiation cataracts were examined five years after exposure by the medical department of the Atomic Bomb Casualty Commission Clinic in Hiroshima to discover if other late manifestations of radiation injury exist. Detailed radiation and medical histories were obtained, and physical examinations were made.

Seventy-seven of the 78 patients experienced scalp epilation. The author states that this suggests that a cataractogenic dose will produce some degree of scalp epilation in the majority of patients. Radiation cataract was the only physical finding attributed to the late effects of the atomic bomb. The histories did not reveal any information which suggested late effects of the atomic bomb other than the visual complaints.

Diabetic Retinopathy with Special Reference to Juvenile Diabetes. R. Siegel. *The Journal of the Medical Society of New Jersey.* Vol. 49. pp. 402–405. September 1952.

1. The frequency of diabetic retinopathy is increasing steadily and occurring at an earlier age.
2. Retinal atherosclerosis is the most common finding in the young diabetic with diabetes of 10 or more years.
3. Atherosclerosis, changes in the venous capillaries, excess deposition of fat and hypoproteinemia with metabolic consequences of edema and hyalin deposition are probable causative factors in diabetic retinopathy. To this array may be added blood sludging in the retinal veins, noted in one of the three cases in this report.
4. Emphasis is directed to retinal edema and edema of the upper eyelids in Kimmelstiel-Wilson's disease.
5. No patient showed a significant rise in the blood cholesterol. The role of the cholesterol metabolism must await the result of long term studies.
6. Up to the present the prophylaxis of rigid control and the use of lipotropic substances offer the best prognosis.

Retrolental Fibroplasia: Clinical Observations. W. R. Hepner, Jr., and A. C. Krause. *Pediatrics.* Vol. 10. pp. 433–443. October 1952.

To discover whether human milk might protect premature infants against retrolental fibroplasia, an experiment was made in the premature unit of the Chicago Lying-in Hospital. Twenty-four infants born weighing from 850 to 1540 gm. were divided into two equal groups. One group was treated differently from the other only in the kind of food offered. The first group was fed nothing but water and autoclaved human milk until a weight of 1800 gm. was attained, and then was isocalorically transferred gradually over a week's time to the formula fed the second group. The second group was fed autoclaved cow's milk with half the cream removed and 10 per cent carbohydrate added. Three patients in each group of 12 developed retrolental fibroplasia. No patient receiving human milk had even the first changes of the disease before being transferred to the formula feedings. The authors say that even though this group is small, it seems reasonable to conclude that 100 per cent human milk feeding of the smaller prematures until a weight of 1800 gm. is reached does not prevent development of the disease later.

The authors point out that a relationship between the electrolyte content of the diet and fluid retention can be established in small premature infants. Excessive retention of fluid may be much more common in prematures fed undiluted cow's milk mixtures than is generally supposed,

particularly when salt containing carbohydrate is added to the formula. An additional contributory factor in the Chicago Lying-in Hospital nursery, where the incidence of permanent blindness due to retrolental fibroplasia has been as high as 22 of 49 (45 per cent) infants born weighing less than 1500 gm., may be that the carbohydrate added in 10 per cent ratio to cow's milk formula contained two per cent sodium chloride. ACTH may exert its temporary influence on the disease by its diuretic effect on water and salt metabolism in the premature infant.

A relationship between large blood transfusions and an increased incidence of retrolental fibroplasia is presented. Review of records of 20 infants born weighing less than 1500 gm. at Chicago Lying-in showed that eight infants had the disease and 12 did not. Every infant with the disease had been transfused. The number of transfusions given and the volume in cc./kg. of each transfusion given is significantly greater in the group of infants with retrolental fibroplasia than in the group without the disease. Records of 22 patients with the disease born in this hospital since 1946 were then reviewed. All but two had received transfusions before evidence of the disease was discovered. Next, records of eight blind infants born weighing less than 1500 gm. in another hospital in the same state were reviewed. All had the disease and each had been transfused.

In summary, the authors state that two factors, formulae of high electrolyte concentration and blood transfusion, may overload the capacities for physiologic adjustment of the smaller premature infant and lead to retrolental fibroplasia. The practice of feeding high electrolyte formulae and excessively large blood transfusion for anemia may be responsible for the remarkable variation in incidence from hospital to hospital, the variation in incidence even in the same hospital and the increasing incidence of retrolental fibroplasia in premature infants following the introduction of these practices.

Anterior Chamber Hemorrhages Following Non-Perforating Ocular Injuries. H. E. Smith. *Rocky Mountain Medical Journal.* Vol. 49. pp. 844–848. October 1952.

The author provides this summary:

1. Traumatic hyphemia is a serious ocular problem which in this series of 27 cases resulted in a final visual acuity of less than 20/40 in 19.2 per cent of the cases. Only 10 per cent of the single anterior chamber hemorrhage cases sustained such a loss.
2. Fifty per cent of those cases in which a secondary hemorrhage occurred had a final visual acuity of less than 20/40.
3. Twenty-two per cent of the patients had secondary hemorrhages which occurred between the second and fourth day.
4. The importance of secondary glaucoma and blood staining of the cornea to the final visual result is shown.
5. The importance of absolute bed rest is demonstrated by the markedly reduced incidence of secondary hemorrhages in those patients confined to bed.
6. Traumatic hyphemia is a serious ocular emergency which must be treated with great care and regard to the pathological physiology.

Evaluation of Available Therapeutic Agents in Ophthalmology. J. B. Rogers. *Southern Medical Journal.* Vol. 45. pp. 964–967. October 1952.

Penicillin has been the most effective agent against most gram-positive organisms. It should be reserved for systemic administration and for injection into certain localized areas of infection such as intraocular infections.

Bacitracin is effective against gram-positive bacteria and spirochetes and has a spectrum similar to that of penicillin. It is seldom used systemically because of toxic effects upon the kidney.

The sulfonamides have a broad spectrum. The three most valuable sulfa preparations for local use are sulfacetimide, gantrisin® and sulfamylon®. Sulfadiazine remains the sulfonamide of choice for systemic administration.

Streptomycin is effective against certain gram-negative and acid-fast organisms. It is the drug of choice against many strains of *Bacillus pyocyaneus* and in *M. tuberculosis* infections. This drug may be injected intraocularly or subconjunctivally.

Aureomycin is effective against gram-positive bacteria, gram-negative bacteria and rickettsiae as well as spirochetes and some viral diseases. Its value in virus diseases of the eyes is not so great as first reports indicated. It is valuable for topical use, but is not recommended for intraocular injection.

Terramycin is effective against gram-positive and gram-negative bacteria, rickettsiae, spirochetes and some viruses. Slowly developing resistance to aureomycin and terramycin has been demonstrated. Also, a simultaneous increase in resistance of bacteria to both of these drugs upon exposure of the organisms to either agent has been shown. These findings indicate the similar nature and mode of action of these two drugs, and emphasize the importance of adequate dosage at the beginning of treatment. This is of epidemiological importance because, through inadequate dosages, many resistant strains of bacteria may be built up.

Chloramphenicol is effective against many gram-negative bacteria, rickettsiae, and moderately effective against gram-positive bacteria, spirochetes and viruses. When given orally, it penetrates readily into the intraocular tissues.

Neomycin is active against numerous gram-positive and gram-negative bacteria as well as acid-fast organisms, but not against fungi and true viruses. It is not recommended for systemic use in its present form because of nephrotoxic and ototoxic effects.

The value of rutin in retinal vascular diseases is still uncertain. Efforts at treating vascular occlusions in the retina with anticoagulants have been disappointing. The use of hyaluronidase to hasten and increase the effects of procaine injections for anesthesia and akinesia has found fairly wide acceptance.

Incidence and Diagnostic Value of the Ocular Fundus Lesions in Hospitalized Medical Patients. C. D. Benton, Jr. *The American Journal of the Medical Sciences.* Vol. 224. pp. 554–558. November 1952.

Careful ophthalmoscopic examinations were carried out on 500 hospitalized medical patients to determine the incidence of ocular fundus abnormalities in medical patients, and to deter-

mine how frequently ophthalmoscopy supplied valuable information in the diagnosis of the disease conditions encountered. Completely normal findings were recorded on 222 (44.4 per cent). Intraocular changes relating directly or indirectly to the current medical status of the patients were present in 203 (40.6 per cent). In the remaining 75 patients (15 per cent) various local abnormalities of the eyes were the only finding.

The significant fundus abnormalities associated with various disease conditions were as follows:

1. Anemia. There were six patients with pernicious anemia and 20 with anemia secondary to gastrointestinal hemorrhage, liver disease and others. Retinal changes seen in patients with anemia were a pallor of the optic disk, mild retinal edema around the disk, patches of localized superficial retinal edema and superficial hemorrhages.
2. Chemical Poisoning. One patient had phosphorus poisoning and one had mercury poisoning. In each there was mild retinal edema around the macular area.
3. Diabetes Mellitus. Of 38 patients with this disease, 19 had no ophthalmoscopic evidence of the disease. Six patients had cataracts. The remaining 13 had fundus changes ranging from a single small capillary aneurysm to the full blown picture of diabetic retinopathy. Eight of these 13 patients had retinal vascular disease.
4. Gastrointestinal Diseases. There are no fundus changes specific for any type of gastrointestinal disease.
5. Heart Disease. The ocular fundi were negative in all 14 cases of rheumatic heart disease. Of 29 patients with acute myocardial infarction, 13 had retinal arteriolar sclerosis and 16 had normal retinal arterioles. In congestive heart failure a definite darkness of the retinal veins was detectable in one-third of the cases. Three cases of subacute bacterial endocarditis had flame-shaped hemorrhages and white exudates in both eyes. All cases of hypertensive cardiovascular disease had ophthalmoscopic evidence of retinal vascular disease.
6. Hypertension. Using the grouping of Keith and Wagener, the author states that the arterial blood pressure was in a range predicted on the basis of Groups I to IV of the retinal arterioles in 56 of the 81 patients with hypertension, including eight with malignant hypertension. A careful evaluation of the retinal arterioles should be made on every patient with an elevated systemic blood pressure. No other diagnostic instrument offers such a wealth of information about hypertension as does the ophthalmoscope.
7. Acute Infectious Diseases. Patients with these showed no fundus changes.
8. Kidney Diseases. Seven patients had acute glomerulonephritis. Five had ophthalmoscopic evidence of angiospastic retinopathy. In patients with hypertensive retinopathy whose hypertension was the result of chronic kidney disease or was complicated by kidney failure, the incidence of retinal cotton-wool patches (fresh exu-

dates) was much higher than in the hypertensive group with normal kidneys. When fresh exudates are the predominate finding in hypertensive retinopathy, the patient's renal function should be carefully evaluated.

9. Liver Diseases. The ocular fundi were normal in 35 of 42 patients with liver disease. The only positive findings were due to a secondary anemia in two patients with cirrhosis, an unrelated hypertension in three patients, and a yellowish discoloration of the optic disks in two patients with intense jaundice.
10. Diseases Involving Lymphatics. No fundus abnormalities were seen in six patients with lymphoma nor in six with Hodgkin's disease. One patient with leukemia had normal fundi and one had typical changes consisting of edema of the optic nerve head and surrounding retina, distention and tortuosity of arterioles and veins with a tendency for the two types of vessels to approach each other in color, hemorrhages and exudates.
11. Diseases Involving the Central Nervous System. One case of brain tumor was encountered in this series. There was no papilledema present, but a primary type of optic atrophy in one eye led to localization of the meningioma near the optic chiasm. The fundi were normal in 10 patients with functional nervous disorders and in four with acute meningitis. One patient with meningitis had a slightly hyperemic optic nerve head and another had slightly distended retinal veins. Nine of 10 patients with a cerebral vascular accident had some degree of retinal arteriolar sclerosis. Two patients with cerebral syphilis had primary atrophy of the optic nerves. One patient with subarachnoid hemorrhage had mild papilledema, another had superficial retinal hemorrhages surrounding the disks, and one had normal fundi.
12. Phakomatoses. One patient, hospitalized because of a spontaneous pneumothorax, was found to have a nodular retinal tumor in one eye. A diagnosis of tuberous sclerosis was confirmed by the finding of intracranial calcification on roentgen ray and histological identification of a multiple face lesion as adenoma sebaceum.
13. Diseases of the Lungs. The 70 patients with acute or chronic lung disease had no fundus changes related to their pulmonary disorder, with the exception of seven patients whose retinal veins were of a darker color than normal.
14. Skin Diseases. The four patients with some disease of the skin had normal fundi.
15. Lupus Erythematosus. Two patients had acute disseminated lupus erythematosus. One had normal fundi and the other had one retinal lesion resembling a cotton-wool patch in one eye.

The Corneal Thickness in Cases of High Myopia. A. Santoni. *Rass. Ital. d'Ottal.* Vol. XXI. p. 219. July–August 1952.

Eighty cases of myopia of 10 or more dioptres were studied by a special technic to determine the thickness of the cornea. The results were compared to the findings of 80 emmetropic eyes. The thickness of the

cornea in the former were 0.012 mm. less than the latter. The method of study consisted of the calculation of the corneal thickness between 2 foci of light, one falling on the anterior surface and the other on the posterior face of the tissue.

EUGENE M. BLAKE, M.D.

The Influence of Cortisone upon Ocular Tuberculosis. A. Grignola, and M. Pannarale. *Rass. Ital. d'Ottal.* Vol. XXI. p. 242. July–August 1952.

Research was conducted upon the action of cortisone in experimental tuberculosis of the eye. The hormone was administered either locally, as anointment, or parenterally to two groups of guinea pigs. The first group was composed of animals originally free of tuberculosis and which received an inoculation of tubercle bacilli into the anterior chamber, while the second group was one of allergic-immune animals in which intra-ocular re-inoculation was practiced. The administration of cortisone, either locally or parenterally produced an aggravation and acceleration of the tuberculous process in animals of the first group, particularly in those treated by local application. No evidence of influence of any kind was observed in the tuberculous process of the immune-allergic guinea pigs. EUGENE M. BLAKE, M.D.

The Therapeutic Uses of the Contact Lens. L. Mariotti. *Rass. Ital. d'Ottal.* Vol. XXI. p. 254. July–August 1952.

The many pathological conditions for which the application of the contact lens has been tried are well reviewed. The author then describes 9 cases in which the contact lens afforded definite help. The cases were those of diffuse disepithelialization of the cornea, chemical burns, recent infective keratitis, symblapheron, herpetic keratitis and over-correction of ptosis.

EUGENE M. BLAKE, M.D.

Study of the Glucose and Ascorbic Acid Content in Chorioretinal Degeneration Experimentally Produced by Iodate of Sodium. G. Gemolotto. *Rass. Ital. d'Ottal.* Vol. XXI. p. 263. July–August 1952.

In rabbits with chorioretinal degeneration induced by the use of sodium iodate, the writer determined an elevation of the percentage of glucose and a lowering of the value of ascorbic acid with a relative increase of the basis ph, but no other change in the blood. Explained upon a biochemical base, the probable hypothesis of such change demonstrates the increase of glucose depending upon altered retinal function could affect the possible reduction of ascorbic acid into glucose. It is assumed that the sodium iodate develops an elective action upon ocular tissue. EUGENE M. BLAKE, M.D.

Sale of Eyeglasses

Again in the 1953 legislature a bill (Assembly Int. 91) has been introduced to rescind the provisions of New York State's 25-year-old law which prohibits sale of eyeglasses without an examination either by an optometrist or a physician.

Among those opposing this backward step are the Medical Society of the State of New York, the Public Health Relations Committee of the New York Academy of Medicine, the Medical Society of the County of New York, the Northeastern New York Eye, Ear, Nose and Throat Society, the State Department of Social Welfare, the Greater New York Council of Agencies for the Blind, the New York State Federation of Workers for the Blind, the state CIO, the New York State Optometric Association, the Society of Dispensing Opticians, the Better Vision Institute and the Nat'l Society for the Prevention of Blindness.

Sterility for Eye Solutions

In a letter to the editor of the Journal of the American Medical Association, published on page 1381 of volume 147, December 1, 1951, Doctors Frederick H. Theodore and Henry Minsky of New York City drew attention to the dangers of contaminated eye solutions. They pointed out that during the previous three years, on at least three occasions, widely used eye drops were withdrawn from the market because of contamination.

Through the efforts of these ophthalmologists the American Medical Association Council on Pharmacy and Chemistry adopted a requirement that solutions submitted for Council approval be sterile. In an article in the American Journal of Ophthalmology, volume 35, page 656, May, 1952, Theodore and Feinstein suggested practical methods for preparation of sterile eye solutions.

The Federal Food and Drug Administrator recently issued the following statement which now requires that ophthalmic solutions be sterile. This statement was published in the Federal Register for January 16, 1953; 18 F. R. 351:

TITLE 21—FOOD AND DRUGS

CHAPTER I—FOOD AND DRUG ADMINISTRATION FEDERAL SECURITY AGENCY

PART 3—STATEMENTS ON GENERAL POLICY OR INTERPRETATION

STERILITY OF OPHTHALMIC SOLUTIONS

Pursuant to section 3 of the Administrative Procedure Act (60 Stat. 237, 238; 5 U.S.C. 1002), the following statement of policy is issued:

3.28 *Notice to manufacturers and repackers of ophthalmic solutions.* (a) Investigations by pharmaceutical manufacturers, physicians, and the Food and Drug Administration have revealed that liquid preparations for ophthalmic use contaminated with viable microorganisms have been responsible for serious eye injuries and, in some cases, complete loss of vision. The Food and Drug Administration has conducted a survey of medical opinion and has found that it is the consensus of informed persons that such preparations should be sterile. It is evident that liquid preparations offered or intended for ophthalmic use purport to be of such purity and quality as to be suitable for safe use in the eye. The Federal Security Agency concludes that such preparations fall below their professed standard of purity or quality and may be unsafe for use if they are not sterile. Accordingly, liquid preparations offered or intended for ophthalmic use which are not sterile may be regarded as adulterated within the meaning of section 501 (c) of the Federal Food, Drug, and Cosmetic Act and, further, may be misbranded within the meaning of section 502 (j) of the act.

(b) Liquid ophthalmic preparations packed in multiple-dose containers should (1) contain one or more suitable and harmless substances that will prevent the growth of microorganisms, or should (2) be so packaged as to volume and type of container and so labeled as to duration of use and necessary warnings as will afford adequate protection and minimize the hazard of injury resulting from contamination during use.

(interprets or applies sec. 501 (c), 502 (f), 502 (j), 52 Stat. 1049, 1050; 21 U.S.C. 351 (c), 352 (f), 352 (j).)

RUFUS E. MILES, JR.,
Acting Administrator

Dated: January 12, 1953

(F.R. Doc. 53-478; Filed Jan. 15, 1953; 8:49 a.m.)

The above requirement is a great victory in the fight against unnecessary blindness. However, it presumably will be enforced only against solutions subject to the regulations of the Federal Food and Drug Administration. Many solutions are prepared in hospital and retail pharmacies and these should also be properly prepared to avoid contamination, particularly with *Pseudomonas aeruginosa*, an organism which can cause a most serious type of corneal ulcer.

BOOKS AND PAMPHLETS

PROGRESS IN OPHTHALMOLOGY AND OTOLARYNGOLOGY. A Quadrennial Review. Vol. 1, Part One: *Ophthalmology*. Edited by Meyer Weiner, M.D. and Edward Maumenee, M.D. Part Two: *Otolaryngology*. Edited by Percy E. Ireland, M.D. and Joseph A. Sullivan, M.B. Grune & Stratton, New York. 1952. 680 p. $15.00.

The editors have endeavored to review the literature from July 1946 to the present as an aid to beginners in these specialties and those busy practitioners who do not have time to read all the articles in the various journals. The articles selected, in the judgment of the editors, offer something new; or at least present the subject in a new light. Seventy-two recognized authorities are represented in the list of contributors. Case reports have been avoided unless they are of an unusual or special nature.

Part One—*Progress in Ophthalmology*—includes five sections: basic science in ophthalmology; diagnosis and treatment of diseases of the eye; surgery of the eye; and related subjects in opthalmology. Among the articles in section two are *Cataract and Corneal Lenses* by Maurice W. Nugent, M.D.; *Retrolental Fibroplasia in Premature Infants* by William Councilman Owens, M.D. and Ella Uhler Owens, M.D.; *Diseases of the Uveal Tract* by Michael J. Hogan, M.D.; *Recent Advances in the Treatment of Glaucoma with Autonomic Drugs* by George B. Koelle, M.D.; and *ACTH and Cortisone Therapy in Ophthalmology* by John McLean, M.D.

In an article on *Industrial Ophthalmology Since World War II* Hedwig Kuhn, M.D., states that the greatest advance in this field has been the intensive research focused on techniques of vision testing; on the significance of individual visual skills; on the needs and methods involved in matching visual capacities to visual job demands; and on the setting up of broad basic groups of minimum visual standards guaranteeing adequate job performance.

AN APPROACH TO MEASURING RESULTS IN SOCIAL WORK. David G. French. Columbia University Press, New York. 1952. 178 p. $3.00.

Are people being benefited by social work services in the way they need to be benefited? Is the money expended for such services by the community justified? What kind of improvements are possible?

These were the questions for which answers were sought in the Michigan Reconnaissance Study of Evaluative Research in Social Work, on which this book is based. The author for the past six years has directed the research and publications program of the American Association of Social Workers. He previously headed child welfare research in the Michigan State Department of Social Welfare. In 1951 he undertook the present study at the re-

quest of the Michigan Welfare League Board. While it is directed primarily toward social work in Michigan, the report will be of interest to people in any state.

Mr. French describes in non-technical terms the processes involved in measuring the results of social work programs and examines the kind of contribution the social sciences can make to this problem. The book concludes with specific recommendations for the establishment and staffing of a research program in social work.

Text-book of Ophthalmology. Vol. V, The Ocular Adnexa. Sir Stewart Duke-Elder, KCVO, M.A., LLD. C. V. Mosby Company, St. Louis. 1952. pp. 4631–5712. $22.50.

Volume V of this great work reflects the brilliance and high standard of achievement for which the author is distinguished. Comprising more than 1,000 pages, it deals exhaustively with developmental anomalies; diseases of the lids, lacrimal apparatus, orbit, and para-orbital regions. The typography and quality of reproduction of the 1,181 illustrations are outstanding.

The Oculorotary Muscles. Richard G. Scobee, M.D. C. V. Mosby Co., St. Louis, Mo. Second Edition, 1952. 512 p. $11.00.

The wide acceptance of Dr. Scobee's text is shown by the need for this new edition within five years. The book has been greatly enlarged, particularly the sections on functional and surgical anatomy. Many other portions were thoroughly rewritten in the light of recent advances in knowledge of physiology. The amount of new material included makes this edition more than 40 per cent larger than the first.

Personality in the Making. Edited by Helen Leland Witmer and Ruth Kotinsky. Harper and Brothers, New York. 1952. 454 p. $4.50.

This is a fact-finding report of the Midcentury White House Conference on Children and Youth, held in December 1950. Its aim is to enable parents, educators, social workers, health practitioners, religious and community leaders make practical use of the best current knowledge on the healthy development of personality in children. It represents the contributions of more than 100 specialists in areas ranging from economics to pediatrics to family life education.

The chapter on "The Influence of Physical Limitations" will be of particular interest to those who work with partially seeing children. "There is probably no child who is up to par in every respect," the report emphasizes, "and few who are totally disabled. What exists in fact is a wide range of capacities and abilities. Each child, if measured at a given time, would have a different combination of ratings with respect to the various attributes. . . . There is no exact line separating the normal from the handicapped. . . . Recognition of these facts should do much to destroy the myth that children suffering from physical limitations or limitations in mental capacity are a group apart, a peculiar kind of creature with thoughts and feelings and desires that are different from those of other people. Instead of being regarded as handicapped children (that is, a special breed of children), they should be looked on as children who have handicaps or limitations of a specific kind and degree as one of their characteristics."

Ophthalmic Nursing. P. Garland, S.R.N., S.C.M. J. B. Lippincott Company, Philadelphia. 1952. 160 p. $3.00.

This practical text is intended for general, trained and student nurses rather than for those in ophthalmic hospitals. The author, formerly Sister in charge of the Ophthalmic Department, St. Thomas's Hospital, London, emphasizes that the written word can never replace practical teaching. She recognizes, however, that a detailed description of nursing technique is of value in a specialized branch of nursing in which experience is likely to be limited.

The book is particularly noteworthy because of the many clear diagrams, drawings and photographs that illustrate the instructional material. Various sections of the text deal with examination of the eyes; common treatments; minor surgery; bandages and shades; cataract and other surgery. Notes on ophthalmic theatre work are also included.

Proceedings of the First Annual Conference on Industrial Vision (1951). Rutgers University, New Brunswick, New Jersey. 48 p. 50 cents.

The papers presented at the First Annual Conference on Occupational Vision, conducted by Rutgers University in Atlantic City, November 1 and 2, 1951, have been collected in a paper-bound booklet. A foreword states that the conference will continue to be of an educational nature and will present the latest and best information available to top management, personnel groups, safety engineers, plant physicians, ophthalmologists, optometrists and all others interested in the problem of occupational vision." The subjects in this collection of papers include eye safety and vision programs, eye accidents, lighting and color problems. The National Society for the Prevention of Blindness is one of the sponsors of the Conference.

Blakiston's Illustrated Pocket Medical Dictionary. Editors: Normand L. Hoerr, M.D., and Arthur Osol, Ph.D. The Blakiston Company, New York. 1952. 1044 p. $3.25 plain; $3.75 thumb-indexed.

An editorial board of authorities in different fields assisted the editors in compiling this new pocket dictionary which follows the general style and form of the larger edition. In addition to the more than 33,000 entries, reference tables are included which permit coverage of much more material than would otherwise be possible. Sixty illustrations, some in color, are placed at the end of the book for easy reference.

The dictionary is designed to meet the needs of the nurse, laboratory worker, medical social worker, pharmacist and dentist; and is recommended for use as well by reporters, lawyers, biologists, teachers and laymen.

Accident Facts. 1952 Edition. National Safety Council, Chicago. 96 p. 75 cents; reduction for quantity orders.

This annual statistical report of the National Safety Council contains a variety of accident facts and figures based on information from the U. S. Census Bureau; National Office of Vital Statistics; Interstate Commerce Commission, Public Road Administration, Bureau of Labor Statistics and many other agencies.

Accidental deaths in 1951 totaled

94,000, an increase of 4 per cent over the previous year. There were 9,400,000 injuries, also an increase of 4 per cent. The Council estimates the national cost of accidents for the year to be $7,900,000,000.

Disabling injuries totaled approximately 2,100,000 in 1951. Those involving the eyes were estimated to be 105,000; 5 per cent of the total.

Psychological Aspects of Physical Disability. James F. Garrett, Editor. Rehabilitation Service Series No. 210, Office of Vocational Rehabilitation, Federal Security Agency. Washington, D. C. Superintendent of Documents. 45 cents.

Those who have any contact whatever with individuals who have a physical disability will want to own this manual. Although the material was designed primarily for rehabilitation workers, it is equally valuable for social workers, psychologists, placement specialists, counselors and educators—especially those who have responsibility for exceptional children and youth.

The fourteen chapters were written by eighteen different professional workers, but there are common threads running throughout the text. Practically every author says that we must take care not to underestimate the ability of handicapped individuals to function successfully with what they have, sometimes with amazing results. Each author emphasizes the importance of avoiding group generalizations and stresses the need for evaluating every case on an individual basis. And all seem to believe that handicapped persons should be contributing members of society. Dr. Berthold, superintendent of the California School for the Blind, Berkeley, says it this way: "Programs which aim at the integration of the blind and instill in them the spirit of independence by strengthening those qualities and skills which will enable them to take their rightful place as members of society are progressive, desirable, and in the best interest of the blind."

Prevention of blindness workers, teachers and supervisors of the partially seeing will be interested in the chapter entitled "The Partially Seeing" written by Marjorie A. C. Young, Consultant in Education of the National Society for the Prevention of Blindness. It discusses causes of partial sight, education of the partially seeing, common eye defects, and problems of personal adjustment, as well as significant vocational problems.

HOME VISITS

A quote from the September 1952 issue of Great Britain's *Journal of The Royal Sanitary Institute:*

"At present much of the health visitor's work is being detached from her by the school nurse, if any, the tuberculosis visitor, the mental welfare officer, the school attendance officer or, to give him his fancy name, the social welfare officer, the psychiatric social worker, the children's officer, the moral welfare officer, the probation officer, the V.D. social worker, the district nurse, the home help, the housing manager and, if they were given any encouragement, we should probably see at their heels the hospital almoner, the dental hygienist, with, hovering in the background, the orthopist and the speech therapist. After this gaggle of gossips has invaded the home in the morning, the N.S.P.C.C. man may well come in at 12 noon to find that the mother, after giving a mayoral reception to this flock, has had no time to cook the meal, and is therefore neglecting her children! Two months hard!"